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MONTHLY BULLETIN
CALIFORNIA STATE BOARD OF HEALTH

Devoted to the Prevention of Sickness and Death

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Sent free, on request, to any citizen of California.

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GUY P. JONES, Morbidity Statistician . . . Associate Editor

Is Your City on This List? It usually takes time for people to take full advantage of a new law. Inertia is a very potent force, and some cities which doubtless are maintaining adequate milk inspection service have delayed making their applications to the State Dairy Bureau for the approval which will permit the grading of milk under the new state milk law. Milk inspecting departments of the following cities have already been approved:

San Francisco, Los Angeles, San Diego, Palo Alto, Santa Barbara, San Mateo, Redlands, Santa Monica, Pasadena, Long Beach, Eagle Rock, Glendale, Burbank and Beverly Hills.

If your city is not on this list, it is your duty to yourself, your children and your neighbors, to find out why. If it is able to maintain a milk inspection department, you should have the health protection which comes from a closely-supervised milk supply.

* * * * * *

The School Teacher as Health Guardian. Seldom is a system of medical school inspection so elaborate that the services of the teacher are not essential to efficiency. Many teachers are overwhelmed by the idea of passing judgment as to whether a child should be sent home or not. A knowledge of medicine is not necessary. In fact, "a little knowledge is a dangerous thing," and the teacher should act on one plan only. She should aim to send home every child which shows any symptom of beginning infectious disease without attempting to make a diagnosis. Above all, the child with a running nose or a fever should be excluded. A clinical thermometer and solutions for disinfecting it should be in every teacher's equipment. Sudden vomiting, headache or sore throat are reason enough for sending a child home and asking that the health officer or school physician investigate, or that the family physician be called. The school physician and the public health nurse, with their medical knowledge and training, are necessary for advising and backing up the teacher, but on the firing line must be always the alert school teacher. On her we depend for the protection of our children. She can make the school safe.

An Advantage of the Rural School. The country school teacher often looks with envy and despair at the elaborate precautions which are taken for health protection in city schools. In the metropolis there are so many provisions for guarding health which seem to be out of reach in the country. Medical inspection by school physicians and public health nurses, for example, helps to keep down disease in city schools by excluding those children who are likely to infect others.

In the country the teacher is most often left to her own resources, and is given little encouragement. But with some assistance from the county health officer or a public health nurse the school teacher can keep infectious diseases from spreading among the pupils. She has one great advantage over the city teacher in this work of life saving. Her pupils live, for the most part, on widely separated farms and they are not likely to infect children in other families after they have been sent home. In the city, on the other hand, the children live close together and play together on the streets and in the playgrounds after exclusion from school, unless they are very closely supervised.

Here the rural school teacher is at an advantage in the fight for disease prevention. A large part of the spread of disease among children in her district will not take place if it is prevented at school, since the children do not often come together in numbers anywhere else. When a child is found to have a little fever, a running nose, bloodshot eyes, or a headache, he can be sent home with the assurance that he will thereby be isolated from the rest of the children. To make the most of her advantage the country school teacher must be alert and keen of observation, and possess a determination that her little domain shall not be an exchange for contagious diseases.

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Los Angeles Leads All Big Cities. Los Angeles has made a remarkable record in the control of communicable diseases during 1915. Of all cities in the United States over 100,000 population, the metropolis of southern California had the very lowest fatality rates for infantile paralysis and also for measles. This low fatality rate for measles was made in spite of the fact that more cases of the disease per 1,000 inhabitants were reported in Los Angeles during 1915 than in any big city of the United States. If all municipal health departments were as active in securing reports of and in enforcing regulations for the control of communicable disease as is that of Los Angeles there would be fewer unnecessary funerals. It is results such as these that warrant the expenditure of funds for the preservation of the public health.

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Conquering a Foreign Foe. Typhus fever is foreign to California and unusual measures are justified in beating it back. The people who have been bringing the disease into California during the last few months have come from Mexico through El Paso, Texas. In addition to calling on the government for increased protection on the Mexican border and between the states, the State Board of Health has required that all Mexican peons imported by the railroads shall pass through a fifteen-day detention period in an isolated camp with weekly cleansing of clothing and persons, before being allowed to mix with other people. Results are already being achieved. The number of cases has decreased, and it is hoped that the disease will soon be banished, in spite of the fact that the winter is the season most favorable to the transmission of this louse-borne disease. Every effort is being made to prevent the disease from gaining a foothold in any part of our population. The State Board of Health has passed regulations authorizing health officers to quarantine and placard infected premises until all dwelling places and people are free from lice. By all these drastic measures the state will doubtless soon be freed from a dangerous disease.

* * * * * *

Mexicans Told How to Prevent Typhus. The Southern Pacific Company has had the California State Board of Health's regulations for the control and prevention of typhus fever in railroad camps translated into Spanish, and the company is printing these regulations and will distribute them to its Mexican laborers, through the company's labor agents. This will give first-hand information to the people among whom typhus fever has been so prevalent. It is among Mexican peons exclusively that typhus has been brought into California, and the Southern Pacific Company's action in distributing educational matter among these Mexican laborers will, no doubt, be productive of results beneficial to the people of the state.

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High School Training Necessary for Nurses. The necessity of better care for the sick should not be overlooked.. In order that nurses may be better equipped for their work, the California State Board of Health recently passed a resolution requiring the completion of a high school course as a prerequisite for entrance into a training school. There is little to be said regarding the importance of a thorough educational training for nurses. A trained mind is an indispensable asset in any profession, and there is perhaps no other profession in which a trained mind will prove more useful than in the nursing profession. This prerequisite will not only raise the standard of nursing, but will insure better care for the sick.

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Mosquito Abatement Districts in the Making. Woodland and Riverside are starting plans for getting rid of mosquitoes and are taking steps to organize mosquito-abatement districts. It is expected that they will soon be lined up with the up-to-the-minute communities which have shown their appreciation of scientific mosquito control by organizing to get rid of these obnoxious insects. There are many cities which still leave mosquito control to the individual, who swats and fumes but makes little headway. The State Board of Health stands ready to help local committees organize mosquito-abatement districts wherever they are needed, and especially in those regions where malaria is present. The mosquito must go!

Malaria in the Rice Fields.

The commercial growing of rice has apparently come to California to stay, and it has brought with it an added problem in malaria control. Since standing water is necessary in the culture of rice, the conditions for the breeding of malaria-bearing mosquitoes are ideal. The problem of preventing the breeding of these insects without injuring the growing rice requires the work of an expert. The problem is by no means solved. Some persons believe that a solution may be found in the use of the top-minnow, which destroys mosquito larvæ, and others believe that dragon flies may be effective in the eradication of the pest. As a matter of fact, however, there is almost no definite information in the matter. Every region where rice culture is carried on should organize and maintain a mosquito-abatement district, so that experts may be procured to solve the problem. In this number of the Bulletin is published an article by Mr. Stanley Freeborn, instructor in entomology, University of California, relative to the mosquito problem in the rice fields, and an article entitled "A Possible Enemy of the Mosquito," by Clarence H. Kennedy of Cornell University, is reprinted in this Bulletin from "California Fish and Game" for October. These articles indicate the work that is being done in the search for a method of exterminating malaria-bearing mosquitoes in the rice fields of California.

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Where the Hookworm Lives.

It is always encouraging to find that a disease is sharply limited to a small region where it can be fought and wiped out. This seems to be true of hookworm in California. The parasite does not seem to spread freely here, except in the deep gold mines, but the extensive investigation of Dr. Ralph W. Nauss, assistant epidemiologist of the State Board of Health, will have to be completed before this can be asserted with assurance. It appears, however, that our hookworm problem will be simple, as it is largely, if not entirely, confined to mines. Moreover, the mine operators, as well as the miners themselves, are anxious to cooperate with the State Board of Health in getting rid of the cause of a serious loss of efficiency and wages through sickness.

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Rabies Rare in Lassen County.

Last winter and spring the State Board of Health, in cooperation with government and county officials, was carrying on an intensive warfare against rabies in Modoc and Lassen counties. The results of the poisoning and trapping of coyotes and control of dogs were so effective that coyotes are now comparatively rare, and rabies has not appeared in Lassen County since July. Occasional cases in coyotes are still being reported from Modoc County, which borders on Oregon and Nevada, but the situation is very much better than it was. In fact, it has been found safe to lift the quarantine against rabies in Lassen County.

Ground Squirrels Still Infected With Plague. Plague-infected ground squirrels are still found in many counties of central California. The state's best insurance against plague at the present time lies in the extermination of ground squirrels. Fortunately, the extermination of these rodents is important to the agriculturist from an economic standpoint, since they are ravenous destroyers of crops. From the public health point of view, their extermination is of even greater importance. If California desires to make certain that plague, one of the most fatal of all epidemic diseases, does not enter our cities, provision must be made for preventing the transfer of infection from rodents to man through the agency of the rat flea. The only available precaution at the present time lies in the destruction of ground squirrels.

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Sanitary Engineering Grows in Importance. The bureau of sanitary engineering of the California State Board of Health has been in operation for little more than a year, but during its short existence it has done untold good in aiding and compelling corporations and municipalities to supply pure water to citizens. It has done much in preventing the pollution of streams and water supplies. It has done much in making California, which by nature is a vacation land, a virtual paradise for the lover of the out of doors. If the pleasure grounds and the streams of California should become perpetual sources of disease infection the state would lose one of its greatest assets. Sanitation in the mountains is not a mere esthetic fancy; it is the conservation of one of California's greatest natural resources.

Several thousand bacteriological examinations of water supplies have been made by the bureau, and twenty-one communities have their supplies examined regularly at the bureau's laboratory. Several hundred inspections of sewage disposal plants and water-supply plants have been made, as well as the necessary reinspections. Among other problems that the bureau is solving are those pertaining to the proper disposal of industrial wastes and garbage, the examination and certification of bottled waters, ice and ice supplies, swimming-pool sanitation, oyster-bed regulation, summer-resort sanitation and the construction and operation of sanitary works. All of these problems are of public concern and are of such a nature that the services of sanitary engineering experts are imperative. With the natural increase in population, and with the increase in industrial activity in California, these problems will increase in importance.

* * * * * *

Californians Live Longer. Every year Californians live to be a little older. In 191 the median age of death was 49.6 years, and in 1915 it was 51.6 years. The median age of death has advanced more than three years since 1911. This increase was greatest from 1914 to 1915 and applies to both men and women for all of the principal causes of death in every geographical division of the state. It would appear that the campaigns waged against typhoid and tuberculosis are bearing fruit, since these diseases find most of their victims in young persons. At all events, this lengthening of the span of life is certain evidence of the better living conditions of the present. Better housing, better wages, better food and all that makes life the more worth living, have all played their parts in making Californians live longer, and if we continue to advance in improving our social and economic conditions, together with the institution of active measures for the prevention of disease, we may delay the age of death a few years more.

* * * * * *

Misinformation About "Catching" Cold.

At this season of the year, health magazines, and even some public health publications, are crammed to the covers with misinformation regarding common colds. Overeating, lack of exercise, fresh air and sleep and a hundred other indiscretions of ordinary living are recited as definite causes of colds, while as a matter of fact, all acute colds are due to the contraction of an infection. You can "catch" cold only from a person who has a cold. Soiled handkerchiefs, dirty hands, common drinking cups and eating utensils are generally the vehicles by which the infection is transferred from the sick to the well. Overeating, lack of exercise and all of the other causes in the encyclopedia of misinformation may be predisposing factors by which the individual's resistance is lowered, providing a fertile field for the infection. To keep well, one must live according to the common rules of hygiene, and to avoid a cold he must protect himself from his fellow man who is thus infected—a thing that is more easily said than done.

CONTROL OF EPIDEMICS AMONG SCHOOL CHILDREN

By ROBERT A. PEERS, M.D., Colfax, Member California State Board of Health.

There are different ways of doing a great many things, but there is almost always a best way. Likewise, there is always a wrong way. The wise man attempts, by means of study and experience, to adopt the best method of doing everything he undertakes. These remarks apply to the control of infectious diseases. There are a number of ways in which epidemics may be handled. Some of these are very expensive and ineffective. Others are more effective and less expensive. The wise man will choose the method which experience has proven combines a high degree of effectiveness at a relatively low cost. A high degree of effectiveness at a relatively low cost means none or few secondary cases and a quick control of the epidemic. The opposite means a spreading epidemic with high morbidity and mortality, a stampeded public and a curtailment of trade and commerce because of fear engendered by the failure of control.

Method of Control.

What is the right method of controlling epidemics?

First. There must be a competent, courageous, up-to-the-minute health officer who is willing to devote the necessary time to disease prevention. Happy and healthy is the community which possesses a full-time graduate of public health devoting his time to the protection of his city with courage and industry.

Second. There must be early detection of the first case or cases.

Third. There must be strict isolation or quarantine of patients until the infective stage is past.

Fourth. There must be isolation of contacts until the period of incubation is over.

Fifth. There must be a determined effort to detect the carrier, the mild atypical case and the patient in the early stage before he is very ill.

Sixth. In the case of infectious diseases of children there should be competent daily inspection of all school children, and children of school age should be excluded from all public places with the exception of school. Schools should not be closed except because of very exceptional circumstances. If it is deemed wise to close the schools, there should be a rigidly enforced regulation keeping children within their home yards. Under ordinary circumstances children should be sent to school. Each school should have a trained nurse or physician examine each pupil and teacher once daily. In this way early cases and mild cases can be detected early and isolated before there has been an opportunity to transfer the infection to others. Also, the nurse will investigate absences and ascertain if such absences are the result of illness. In those diseases, such as diphtheria, where it is possible to detect carriers, cultures should be made from the secretions of the nose and throat of each child, each teacher and every contact. Carriers should be dealt with as prescribed by the rules laid down by the State Board of Health.

Involves Least Expense.

If the above rules are carefully observed and rigidly enforced, epidemics among school children can be controlled with the least possible expense and in the shortest possible time. The detection and isolation of the first case, followed by rigid school inspection, with exclusion and subsequent supervision of all children who are not well, will often limit the occurrence of infectious diseases to the household where the first case is detected.

The author of this paper was prompted to write the above by the observation of wrong methods used in an attempt to control an epidemic of scarlet fever which occurred last spring in a California city of about 2,500 inhabitants. Before the state authorities assumed control and by proper measures terminated the epidemic, about fifty cases of scarlet fever had been reported, the grammar schools had been closed for the year with a loss of schooling of from six to eight weeks, affecting approximately two hundred children of all grades, the people of the community had become stampeded, and the merchants of the town lost much trade because people were afraid to visit the stores to make purchases for fear of being exposed to scarlet fever.

Reasons for Spread.

What were the underlying causes for the failure to limit the spread of the disease? The author believes the following to be the true reasons:

First. The health officer had no special training in public health work. He was a business man who, in addition to his vocation and his position as health officer, was also city marshal, superintendent of streets and ex officio tax collector. No matter how capable and conscientious he may have been, it was not possible for him to devote the necessary time to public health work.

Second. Contacts were not, in all instances, excluded from school. Cases were reported where children from homes in which scarlet fever existed were allowed to continue to attend school.

Third. There was no uniformity in the length of time patients were in quarantine and there seems to have been cases where patients were released from quarantine too early.

Fourth. There was no school inspection except for a few days before the schools were closed. Practically no effort was made to detect so-called "missed" cases. When the people became alarmed the trustees closed the public schools and the children were excluded from the only place where there could have been an opportunity for supervision and restraint.

Fifth. No regulations were put in force to control the movement of children of school age.

Sixth. There was no inspection of dairies to see if the milk supply was at fault.

Seventh. There was lack of cooperation upon the part of the local physicians.

Methods that Succeeded.

What were the methods adopted which successfully terminated the epidemic?

First. The director of the Bureau of Communicable Diseases of the State Board of Health called a conference of the physicians of the town and the members of the local health board. These met and agreed to follow the rules regarding quarantine and isolation as prescribed by the director. Previous to the conference the director had made a survey of the city and of the sources of milk supply and had reached the conclusion that the cases were not due to infected milk but were probably the result of contact.

Second. The director closed, temporarily, the moving picture theatres, churches and Sunday schools. These were later allowed to reopen with the proviso that children under eighteen years of age be excluded until all danger of further spread of the disease had subsided.

Third. The director advised the appointment of a physician as health officer. This was later done, and a very capable and efficient physician appointed, not only as local health officer but as an inspector for the State Board of Health.

Fourth. Children under sixteen years of age were not allowed to leave town without permission of the health officer.

Fifth. Definite rules regarding quarantine and contact cases were given and observed.

Sixth. Newspaper publicity was given to the fact that a conference had been held and as to the rulings of the director.

As a result there were but three subsequent cases and the epidemic was promptly controlled.

Proper Control Saves School Money.

An interesting and instructive incident which occurred during this epidemic might be recorded with profit. In this city was a high school with a daily attendance of two hundred pupils. In the week preceding the visit of the director of the Bureau of Communicable Diseases there occurred three cases of scarlet fever among the pupils of the high school. There was a rather strong sentiment upon the part of some of the parents that the high school should be closed. The trustees felt that this would be a great hardship and a very direct loss to the scholars and to the school. They obtained permission from the director to engage a trained nurse and institute rigid school inspection. Their request was granted and they secured the services of a nurse experienced in public health work and who, herself, was immune to scarlet fever by reason of a previous attack. The nurse daily inspected every child and whenever there was any suspicious symptom, such as headache, sore or red throat, very rapid pulse or fever, such pupil was excluded from school and placed under observation at home. Such students were visited daily by the doctor and nurse. Likewise the nurse visited the homes of all absentees from school to determine whether such absence was due to illness. Probably because of the rigid rules laid down by the director, no new cases developed, but had such cases appeared they would have been promptly recognized under school inspection. At any rate, two hundred students were allowed to continue their studies, take their examinations, hold their graduating exercises and graduating dance without the occurrence of a single new case of scarlet fever, at a cost of only $150.00 to the school district. How much better this was than the closing of school, can be very readily appreciated.

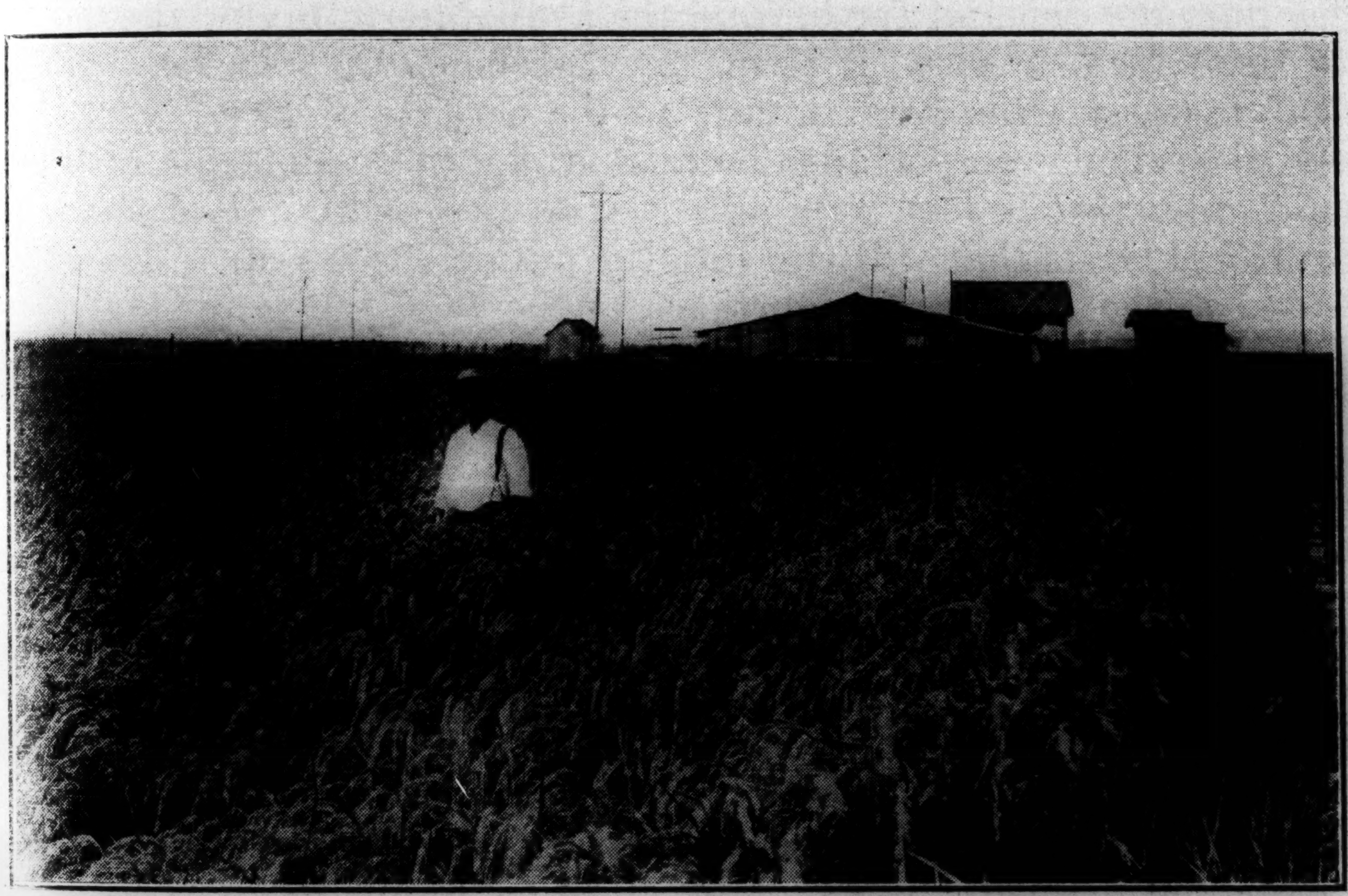
RICE, MOSQUITOES AND MALARIA.

By **Stanley B. Freeborn**, Instructor in Entomology, University of California.

The last four years have seen the birth and growth of a new agricultural industry in California, the advent of rice culture. Like every other new enterprise it has its own difficulties and problems.

Agriculturally, the central valleys of California are admirably suited to the culture of rice. A large percentage of the land now in rice is absolutely worthless for any other use, either because of the nitrogenous insufficiency, due to constant previous croppings, or because of unfavorable texture. From the standpoint of agricultural economics, rice culture is destined to be a permanent factor in California agriculture.

From the public health standpoint, however, rice culture promises to be a distinct menace. The growing of rice demands that the entire acreage under cultivation be flooded with water, stagnant or in a gentle current, from approximately June first to October fifteenth. This water, with the attendant pools resulting from seepage, faulty construction and carelessness, breeds myriads of mosquitoes. Approximately 70 per cent of these mosquitoes are Anophelines, or malaria bearing. It is an unimpeachable truth that malaria is transmitted solely through the bites of this type of mosquito; hence, the relation of the rice fields to the public health of those districts where rice culture is becoming the predominant industry.



A field of growing rice. Since the conditions in this field make it an ideal breeding place for mosquitoes, persons living in the dwelling house shown in the picture are in danger of contracting malaria. The formation of mosquito abatement districts will help to solve the problems connected with the breeding of mosquitoes in the rice fields.

Briefly, the facts of our problem can be divided into three subdivisions under the headings—rice, mosquitoes, and malaria.

Rice.

Rice was grown commercially in California for the first time in 1912 at Biggs, in the Sacramento Valley. Although this was but four years ago, the returns have proved so attractive that each year has shown at least a 100 per cent increase in acreage.

Year	Acres of rice
1912	1,400
1913	6,000
1914	16,000
1915	32,000
1916	*80,000

Only a very small percentage of the available and suitable land has been taken up at this time. Rice is protected by a fairly heavy tariff, and the average consumption of six pounds per capita for the United States puts the demand far beyond the available supply of the country. With these facts in view, it seems very probable that we may expect a healthy increase from year to year in the acreage of rice. Its cultivation is of economic importance because it makes possible the utilization of land otherwise useless, with an entry on the credit side of the state's agricultural books that will run into the millions this year. These facts are cited to show the real importance of the industry to the state.

Unfortunately, the production of rice and the production of the aforementioned Anopheles or malaria bearing mosquitoes find their optimum conditions to be practically identical. When the rice plants have made a few inches growth, the water is flooded over the field to the average depth of five inches. This makes an ideal breeding place for the Anopheles, because, in spite of the fact that a very gentle current is maintained in the center, the water at the edges of the field and along the contour checks is practically stagnant and breeds countless hordes of mosquitoes during the five or six months of the year that the fields are continually flooded.

The initial steps of all new industries are often characterized by hasty, haphazard methods, practiced in order to insure quick returns at a minimum expense, with little thought regarding efficiency and future results. The rice industry is no exception to this rule. Already, the disregard of proper agricultural tenets, such as crop rotation, seed selection, etc., is being felt by some growers. The haste and carelessness is extremely evident in the construction of the irrigating systems. These for the most part are anything but water-tight and the inevitable result is that the surrounding country is converted into a veritable bog. In most of the rice districts the entire countryside is dotted with stagnant pools, the roadsides are bordered and in some places actually covered by stagnant water that is, almost without exception, furnishing breeding ground for millions of malaria mosquitoes. It is a conservative estimate that more than one-half the increase of mosquitoes due to rice culture can be traced to such situations as these that are largely due to neglect and could be wholly corrected.

Unfortunately, the districts destined to be rice areas of California were considered, even before the advent of this new industry, the worst mosquito and malaria stricken parts of the state (Fig. 1). The rice

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*Estimated.

growers, rather indignant because the entire responsibility for the situation is placed on their shoulders, point out this fact with some degree of righteousness. However, through educational and anti-mosquito campaigns, the situation was being slowly but steadily relieved throughout these districts before the advent of rice, but with its introduction, the prevalence of mosquitoes and malaria has increased several fold.

Mosquitoes.

There are two different Anopheline mosquitoes which breed in the rice fields and throughout the Sacramento Valley. One of them, *Anopheles occidentalis*, a medium sized, brownish mosquito with four distinct spots on each wing, is known to be the carrier of malaria. The other, *Anopheles pseudopunctipennis*, which looks very much like *Anopheles occidentalis*, except that the frontal margins of its wings are marked with two yellow spots, while the rest of the wing is mottled, is not definitely known to be a malaria carrier, although circumstantial evidence points in that direction.

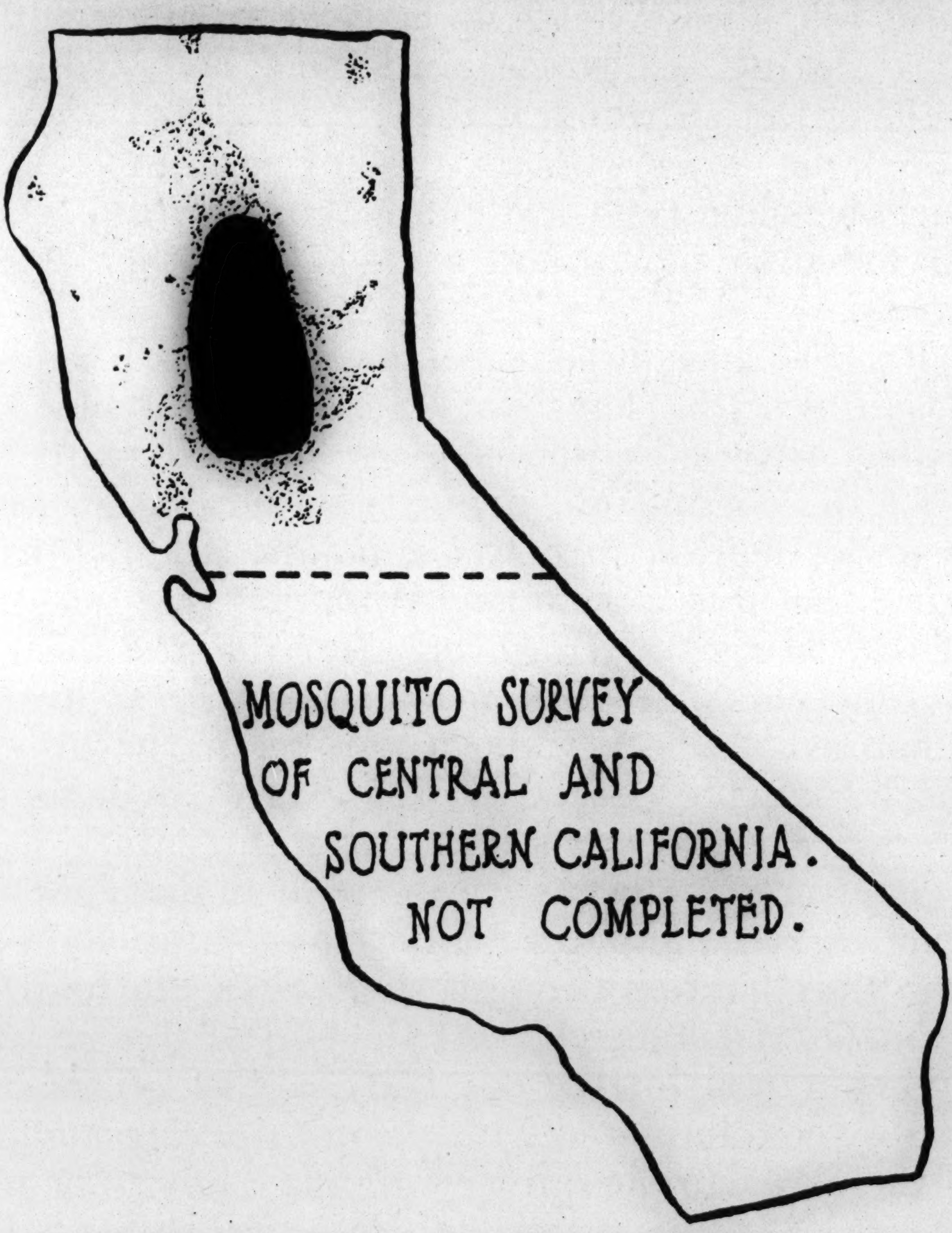


Fig. 1. Map showing the district where rice is being raised (black area) situated in the heart of that section of the state where malarial mosquitoes are found (shaded area). The rice industry and the malarial conditions south of Sacramento have not been investigated.

The adult Anopheline mosquitoes deposit their eggs singly on the surface of the water. The nonmalaria-bearing species of the rice fields, commonly called the Culicine mosquitoes, lay their eggs in rafts. From twelve to twenty-four hours after the eggs are laid the *larvæ* or wrigglers emerge. The Anopheline larvæ can be easily distinguished by their habit of resting parallel with the surface of the water. The

Culicine larvæ hang head down from the surface at an angle. The length of time required for a wriggler to attain full growth depends on the temperature, but it is probably safe to say that the midsummer time for the larval period in the Sacramento Valley is not more than ten or eleven days. During this time the wrigglers have shed their skins several times and are approximately one-half an inch long. They then pass into a resting stage known as the *pupa* or tumbler stage which takes place in the water and is a transformation period, when the aquatic larva changes to the terrestrial winged adult.

The adult Anopheline mosquito differs from the Culicine in that the *palpi* or feelers (not antennæ) of the former are as long as the *proboscis* or beak, while those of the latter are barely one-third as long. The Anopheline, too, always holds its body at an angle with the surface on which it is resting while the Culicine's body is generally held parallel with the object on which it rests.

The range of flight varies with the type of mosquitoes. The Anophelines or malaria-bearing type are found only within a few hundred yards of their breeding places, but some of the other types have been found miles away.

All of the rice field mosquitoes pass the winter as unengorged adults, *i. e.,* adult mosquitoes that have not had a meal of blood. It is very possible that they may suck plant juices but this point has not been established. At the coming of spring these adults emerge from their hiding places under houses, in belfries, hollow trees, caves and similar places, attacking the first warm-blooded animal they meet, irrespective of the time of day or night. However, after the first meal they become nocturnal or crepuscular, feeding only at night or at dusk. If one of their victims happens to be a malaria patient of the previous summer who is still harboring the causative organism of malaria in his blood, these mosquitoes will take them into their alimentary canals. These parasites are able to resist the gastric juices of those types of mosquitoes that are malaria carriers, and after a developmental change in the mosquito's stomach they burrow through that organ and multiply in cysts on the outer wall of the stomach. At the end of five or ten days after the malarial person was bitten, the body cavity of the mosquito has become thoroughly contaminated with the multiplying malarial parasites which all find their way to the salivary glands ready to be pumped down the proboscis into the next person the mosquito bites. The mosquito remains infectious throughout the remainder of its life but does not transmit the parasite to its offspring. Unfortunately the disease has no apparent ill effects on the mosquito.

In a very hasty way the facts of the case have already been stated. The introduction of rice culture and its phenomenal growth in a country already malarial and mosquito-ridden has increased the malaria cases and the number of mosquitoes in almost direct proportion to the growth of the industry. The solution of the problem is far from settled.

It is out of the question to apply any larvicide to the water used for irrigation. Oil would kill the rice as readily as it would the mosquito wrigglers. Salt applied in quantities large enough to kill the larvæ would not only cut down the rice yield to such an extent as to make its production unprofitable but it would render the land too salty to be of use for any other crop. Rice experts claim that standing water is absolutely essential in spite of some of the claims of the proponents of the merely moist soil idea. Experiments conducted in California show that the former are indeed correct. Vegetable powders that can be used as larvicides are at once ineffective and expensive. Among the natural enemies, fish and dragon flies seem to be the most important, but although they undoubtedly exercise some check, they are handicapped by the rice field conditions to such an extent that their influence is of little importance.

The breeding of mosquitoes in the seepage and drainage pools outside the rice fields is, however, inexcusable. In the first place, careful and efficient irrigation construction would do away with these pools almost entirely, except where the water table has been raised to the surface, and, secondly, those pools that would not be eliminated by such construction could easily be cleaned up by draining them to a running stream or filling in the depressions that harbor them. All these expedients failing, surface oiling with a fuel oil of about 28° Beaumé will kill all the larvæ that happen to be present. With these secondary pools cleared up, 50 per cent of the mosquitoes of the rice field districts will be eliminated. The water is not turned into the rice fields permanently, much before June first. The mosquitoes of the district, however, have been breeding in other available places since March or some time earlier. Every mosquito destroyed previous to the flooding of the rice fields means the cutting off of its countless progeny that would otherwise breed undisturbed in the flooded fields. Again, at the end of the season, the mosquitoes continue to breed for a month or two after the water is drained off the fields, depositing their eggs in neglected pools. In this way, the adults that over-winter and start the next summer's crop are produced. It seems plain that if an ardent anti-mosquito campaign were waged before and after the water is on the rice fields, that the numbers left to start the rice field generations would be greatly reduced. Al of the mosquitoes, however, could not be eliminated, and consequently other phases of the malaria question must be utilized.

Malaria.

It is a known fact that the malaria parasites are carried over the winter in the blood of persons who have had the disease the preceding summer. Quinine will eradicate these parasites from the blood and if taken in small daily doses will prevent infection, even if bitten by infectious mosquitoes. Theoretically, at least, if every one in the community were to be rid of malarial parasites in the winter months, the emerging mosquitoes could bite to their stomach's content without becoming infected with malaria. In the same way, if every one exposed to the bites of Anopheline mosquitoes would take a daily dose of six grains of quinine, the result would be that no one would contract malaria even though bitten. This system of taking quinine is commonly spoken of as quinine prophylaxis.

As has already been mentioned, the malaria bearing parasites will travel but a few hundred yards from their breeding places and seldom bite except at night or approaching dusk. Thus it will be seen that malaria prevention demands that those people whose residence or occupation takes them into the rice country at night or at dusk should depend on personal protection by veils or screened dwellings, in conjunction with careful quinine prophylaxis as a guard against accidental bites.

Many communities five hundred yards or more away from the nearest rice fields have stoically accepted the mosquitoes that infested their dwellings as a product of the rice fields and calmly ignored the breeding places that abounded on every hand. The observations already made by other observers and confirmed hundreds of times this summer on the northern California mosquito survey made by Professor W. B. Herms and the writer, are that it would be highly improbable that any of these communities (those five hundred yards or more from the rice fields) would be bothered by mosquitoes of rice field origin, as they receive their quota of mosquitoes from nearby sources.

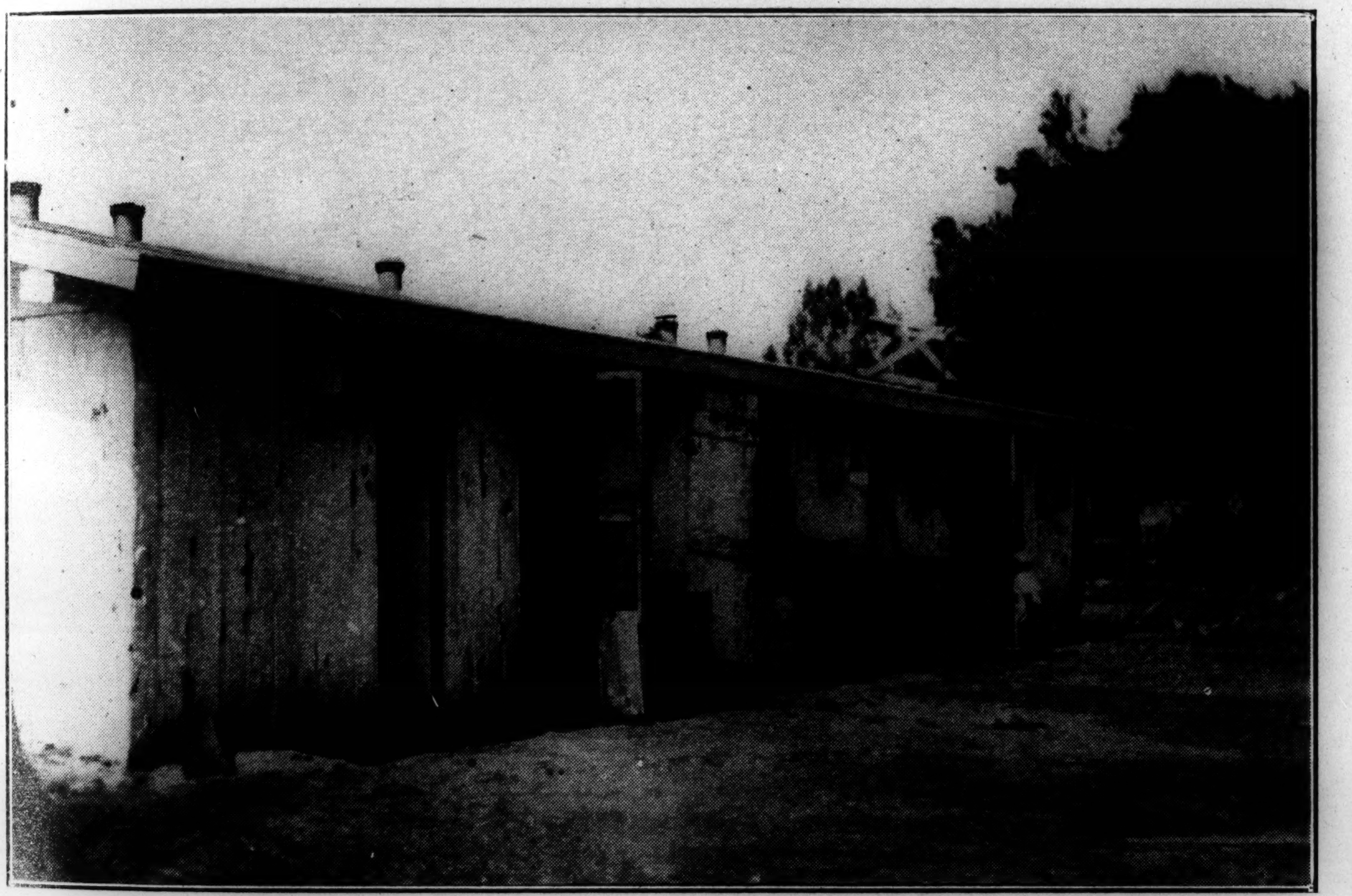
An antimosquito campaign, in order to be effective, must be intensive and community-wide in its scope. The efforts of one landowner to eradicate mosquitoes from his premises may be completely counteracted by the neglect of his neighbor. In order to eliminate this feature, an act of the legislature known as the Mosquito Abatement District Bill was passed in 1915. This enables the formation of districts where mosquito control is desired, authorizing the taxation of landowners in that district to the extent (if necessary) of ten cents on a hundred dollars. The funds thus collected are used for the salary of the expert placed in charge and for labor and utensils used in the actual work. Several districts have already been formed and the results have been extremely gratifying to every one concerned. The State Board of Health is extremely anxious to see more of these districts organized. Further information as well as a detailed survey of the proposed district (if popular demand warrants it) may be procured by writing to the Secretary of the State Board of Health at Sacramento.

The solution of the problem as we see it today rests on (1) the elimination of all breeding places outside the rice fields both before, during and after the time the fields have been flooded, and (2) quinine prophylaxis and careful screening until either malaria or mosquitoes are under control.

TYPHUS AND THE MEXICAN IMMIGRANT IN CALIFORNIA.

By H. F. SENFTNER, M.D., Dr. P.H., Assistant Epidemiologist, Bureau of Communicable Diseases, California State Board of Health.

The fever known as typhus has long been recognized in the Old World and has proved a terrible scourge time and again in such countries where filth, poverty, unsanitary housing conditions and personal uncleanliness have existed among a population. We need but direct attention to the appalling death rate, at one time reaching as high as five hundred a day, which is recorded in connection with the outbreak of typhus fever in the Serbian army in 1915 to show how insidious and rapid this disease may be in its epidemicity and how difficult to control when once it has gained a foothold in a louse-infested country. On the other hand, we shall try to show how needless was this heavy loss of human life and its concomitant misery and how effectively the modern-day science of preventive medicine if applied would have avoided such a calamity. All that was required was a proper health authority to enforce personal cleanliness and proper house sanitation, and to spread among the people a propaganda of education in relation to typhus fever, its nature, its cause, its mode of spread, and its prevention.



A railroad Mexican section labor camp. The house is constructed of old, worm-eaten, insect-infested railroad ties. A coat of whitewash inside and outside covers some of the accumulated filth. There are almost no facilities for the admission of sunlight and fresh air. There are no screens, baths or wash rooms. This is all that a section camp should not be.

The carrier of typhus fever is the body louse, which, when it has bitten a person ill with typhus, itself becomes infected with the typhus virus and so transmits it to one or more persons whom it may thereafter bite. Since, therefore, this is the method of typhus transmission, or so-called "contagion," it is apparent that the only suitable motto which we can adopt in a campaign seeking to eradicate typhus fever from any community is "NO LICE—NO TYPHUS"; we should, however, always bear in mind this important fact—that filth and uncleanliness of person or home must be thoroughly stamped out before the purport of our motto can become truly effective. In order that this may be accomplished, a population must be housed under strictly sanitary conditions.

The body louse (Pediculus vestimenti), greatly enlarged. Typhus fever is transmitted only by this insect, which is found where filth abounds. The eradication of body lice is essential in the control of typhus.

The population having been properly housed, an educative campaign should be inaugurated whereby the benefits of frequent bathing, cleanliness of person and clothing may be instilled into the minds of those among the population who may be ignorant in respect to these matters, or totally indifferent.

During the recent investigation of a typhus outbreak in Mexican section labor camps the various representatives of the State Board of Health in their supervision have not found it necessary to coerce the Mexicans but have, through the medium of careful and painstaking interpreters reasoned with them, and have always tried to show them the benefits which would accrue from an improvement in their personal and domestic hygiene and camp sanitation. The immigrant Mexican laborer has come to us from a country long rent by civil war and suffering all the evils attendant upon filth, famine and sickness. He is willing to leave behind him the old conditions of living and to conform to our American standards. He can attain this only through a slow process of education. Given the opportunity to better himself, not only economically but also hygienically, he will, to the best of his ability, endeavor to rise above his former condition, to a plane of living that meets our standards, at least in respect to personal and domestic hygiene. Unfortunately, housing conditions under which he is at present constrained to live are in many instances far from satisfactory and the Mexican himself is keen to note that all his attempts to maintain satisfactory hygienic and sanitary standards under such conditions are practically useless; as well try to keep himself and his habitation free from the swirling dust that permeates all in a desert sandstorm as to try to overcome the unsanitary conditions which beset him on every hand. Thus reasons the Mexican. It is true, nevertheless, that the Mexican has himself to blame, to a large extent, for such conditions. We can only account for this state of affairs by the fact that the Mexican peon, who, in the past, has emigrated to the United States, alone or with his family, in order to secure work on the railroads, came from a class rather low in the social scale. The railroads, recognizing the unsanitary conditions under which the peon had lived in Mexico, had formerly always regarded him as incapable of appreciating anything better. Latterly, however, it is very gratifying to note that the railroads are providing better housing facilities for this class of workers. The evolution of the camp house has already passed from the original mud-reinforced old-tie house, through that of the frame bunkhouse and the discarded box-car house, until now we find the excellent and sanitary concrete house coming more and more into general use. To be sure, the progress made in the elimination of the old quarters and the construction of the new is necessarily slow, owing to the large number of camps and the expense incurred.

A POSSIBLE ENEMY OF THE MOSQUITO.*

By Clarence Hamilton Kennedy, Cornell University.

During July and August, 1915, the writer, through the assistance of the California Fish and Game Commission, had the opportunity of studying the aquatic insects in the streams of southern and eastern California, and of collecting the native fishes in the Mojave and Owens River watersheds. The work concerned itself principally with the problem of fish foods.

Among the things of interest discovered was a top-minnow in the Owens River, which can probably be used to advantage in combating the mosquito in those parts of the state where these insects are a pest about permanent fresh-water marshes. The only name that this interesting little fish bears besides the name "top-minnow," which the other members of this insectivorous family also carry, is its rather formidable scientific name, *Cyprinodon macularius.* This name is unfortunately almost twice as long as its owner, as this fish is usually less than one and a half inches in length.

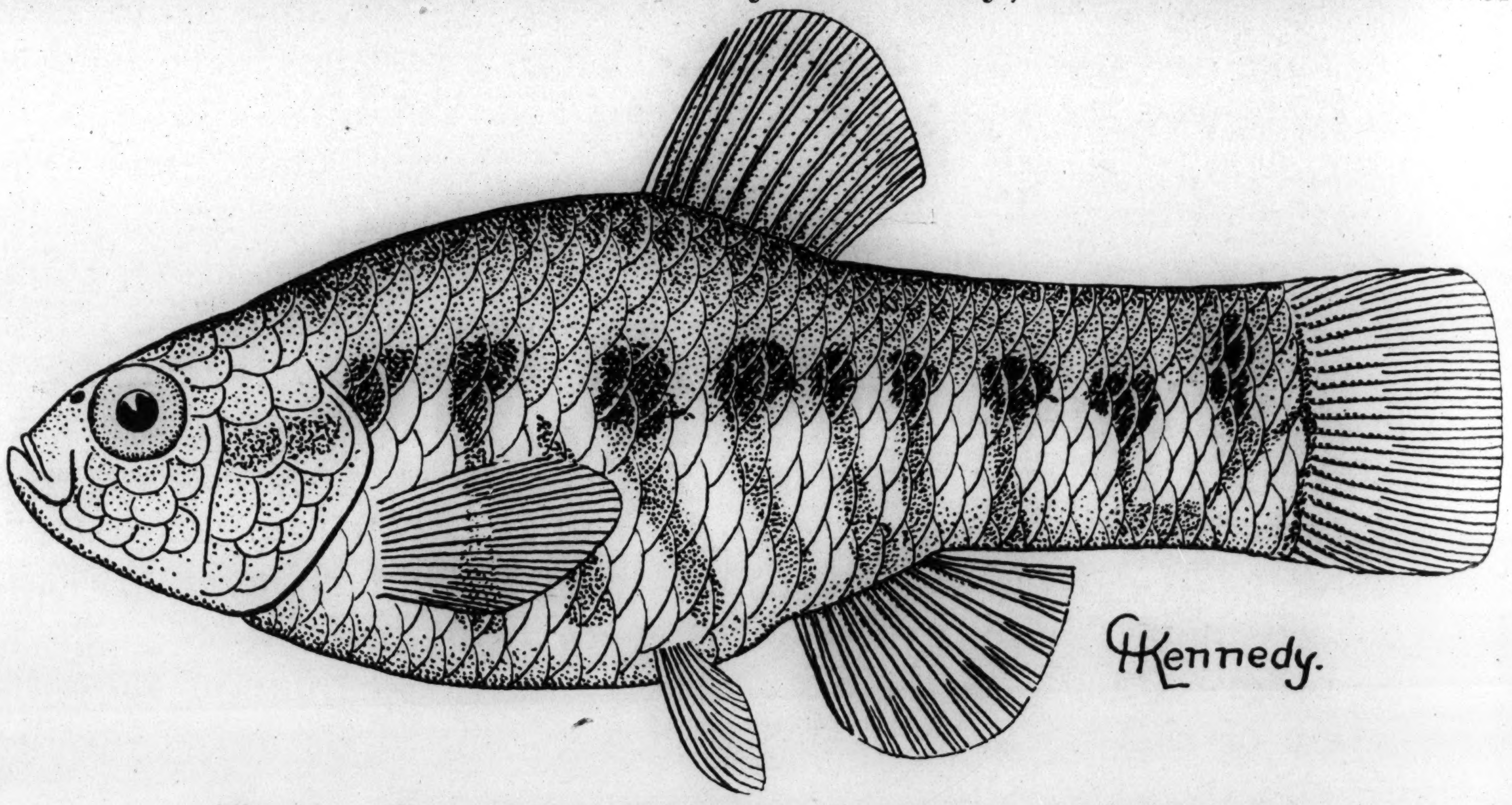


Fig. 61. The western top-minnow, *Cyprinodon macularius.* X3.

The top-minnows are a family of small fishes, the greater number of which feed on the various minute insects that breed in shallow water. It is in such a family of small insectivorous fishes that one would naturally look for an enemy of the mosquito. *Cyprinodon macularius* is the second top-minnow so far discovered in the fresh waters of California. Probably it has entered from the Colorado River drainage, where it is widely scattered. It is fortunate that a member of this useful family of fishes occurs as a native of the state, for such can be more readily utilized for mosquito control than any of those top-minnows native to the central states.

A lengthy description of *Cyprinodon macularius* is superfluous as the drawing (Fig. 61) shows the peculiar, barred pattern in shades of gray and which, which characterizes Cyprinodon. It seldom reaches over an inch and three-quarters in length and has a deep, bass-like shape. In the Owens Valley it is thought by many local people to be the young of the large-mouth black bass, which was introduced into the valley by the State Fish and Game Commission a few years ago.

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*Reprinted, by permission, from California Fish and Game, October, 1916.

This fish was found in abundance in all the shallower parts of the sloughs and tule swamps at both Lone Pine and Laws. It was most abundant in the edges of the large tule swamp that lies in the big bend of Owens River between Laws and Bishop. At Laws the writer observed schools of these top-minnows nipping at specks floating in the little ditch that irrigated the hotel yard. This ditch was not over eighteen inches wide and six inches deep, and was over half a mile from the river. Every pool cut off by a gravel bar along the river contained a few of these little fish. They were apparently entirely comfortable in water not over four inches deep. The writer collected quantities of these fish by placing a butterfly net in the water and frightening the little fellows into it. By careful maneuvering sometimes a half a pint could be caught in one ''haul of the net.' A half pint is a large number of these fish midgets, as they will average over two hundred and fifty individuals to a full pint. This small size is this fish's advantage, for as a consequence there is available to it as food the quantities of minute aquatic insects too small for the food of larger fish. Its small size also permits it to explore with ease and safety the shallow side pools swarming with insect life, that are too shallow for larger kinds of fish. In the fish ''navy'' these small fellows can be considered from two points of view as the ''mosquito fleet.''

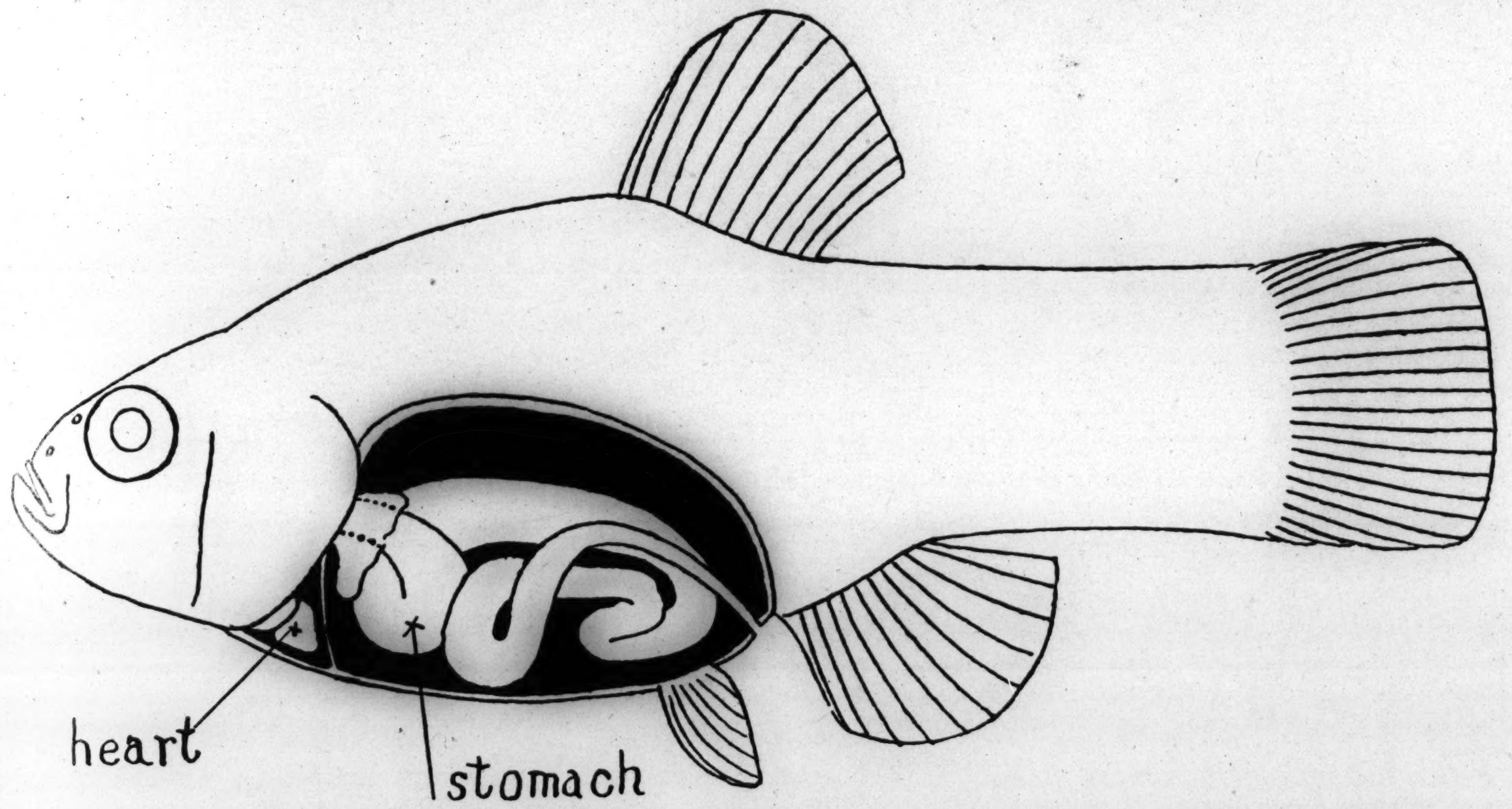


Fig. 62. Outline drawing showing the alimentary canal of the western top-minnow.

The most interesting, though perhaps the most tedious part of this study, was the dissection of the fish and study of the stomach contents of these top-minnows. The illustration shows the arrangement of the alimentary canal (Fig. 62). The stomach is quite long, contains a loop and shades insensibly into the intestine. The stomach had to be dissected out, opened, and its contents placed in a watch glass for a bowl, where the partially digested food could be examined under a microscope. The stomachs of all the fish examined were crammed with insect remains. Apparently Cyprinodon's appetite was larger than his stomach. In nearly all cases nine-tenths of the contents were Chironomid fly larvæ (Fig. 63). The Chironomid flies are a family of insects so closely related to mosquitoes that only a trained entomologist can tell the insects of these families apart. Figure 64 shows the mosquito-like form of a Chironomid. The larvæ, usually bright red in color and spoken of a blood worms, live in water much as do mosquito larvæ, while the adults are harmless, except a few species that suck blood, as do mosquitoes.

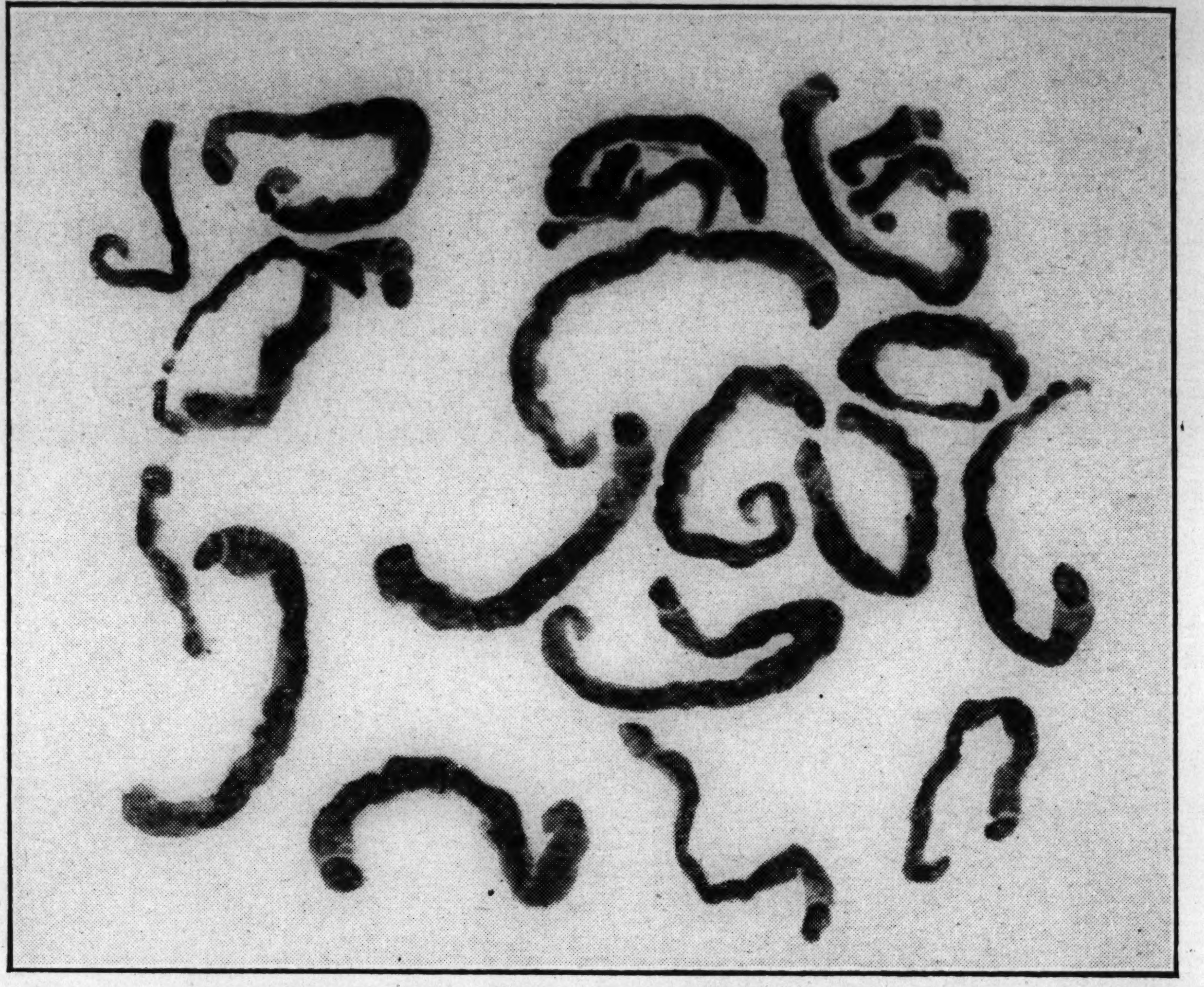


Fig. 63. Chironomid larvae, the entire contents of the stomach of fish no. 14.

The following table shows the stomach contents of fourteen fish:

No.	Length of fish in inches	Chironomids found	Other food
1	1½	6 larvæ	
2	1⅓	16 larvæ	1 Estheria (crustacean).
3	1½	24 larvæ	
		6 pupæ	1 beetle.
4	1¼	4 larvæ	
5	1½	20 larvæ	
6	1¼	2 larvæ	
		1 pupa	1 beetle, 1 mayfly larva, 1 adult mayfly.
7	1½	23 larvæ	
		3 pupæ	1 beetle larva.
8	1½	28 larvæ	
9	1½	12 larvæ	
		9 pupæ	1 mayfly, 2 mayfly nymphs.
10	1¼	20 larvæ	
		2 pupæ	1 mayfly larva.
11	1¼	4 larvæ	
		2 pupæ	1 mayfly nymph.
12	1¾	14 larvæ	(This was a female with 50 mature eggs.)
13	1¼	16 larvæ	(This was a female with 46 mature eggs.)
14	1¼	17 larvæ	

The great predominance of Chironomid larvæ and the large number in each stomach show at once what efficient destroyers of water insects these little fellows are. The absence of mosquito larvæ can be readily accounted for by the lateness of the study, as mosquitoes have largely disappeared by August, through other causes. Chironomid larvæ are always abundant, for they have gills and not being compelled to come to the surface to breathe, as are mosquitoes, they live on the bottom and in trash where they have more protection from their enemies. The mosquito larvæ being compelled to live at the surface, where they are easily seen, are probably cleaned up by the fish early in the season.

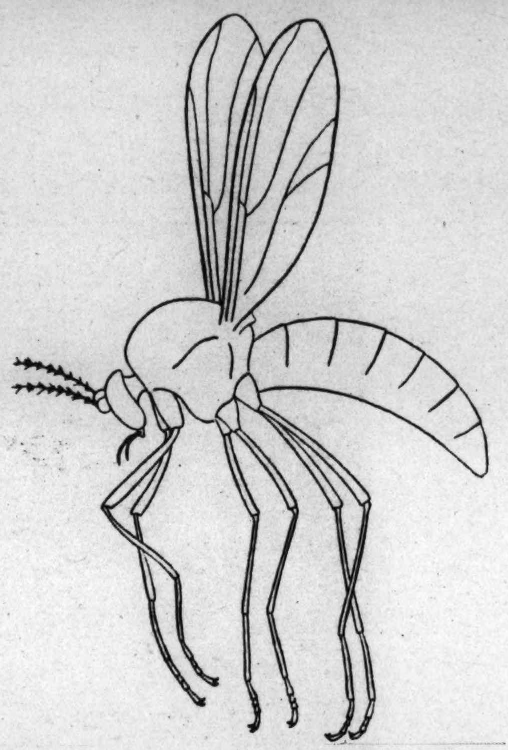


Fig. 64. A chironomid fly. These flies are close relatives of the mosquitoes and breed in all running and stagnant water.

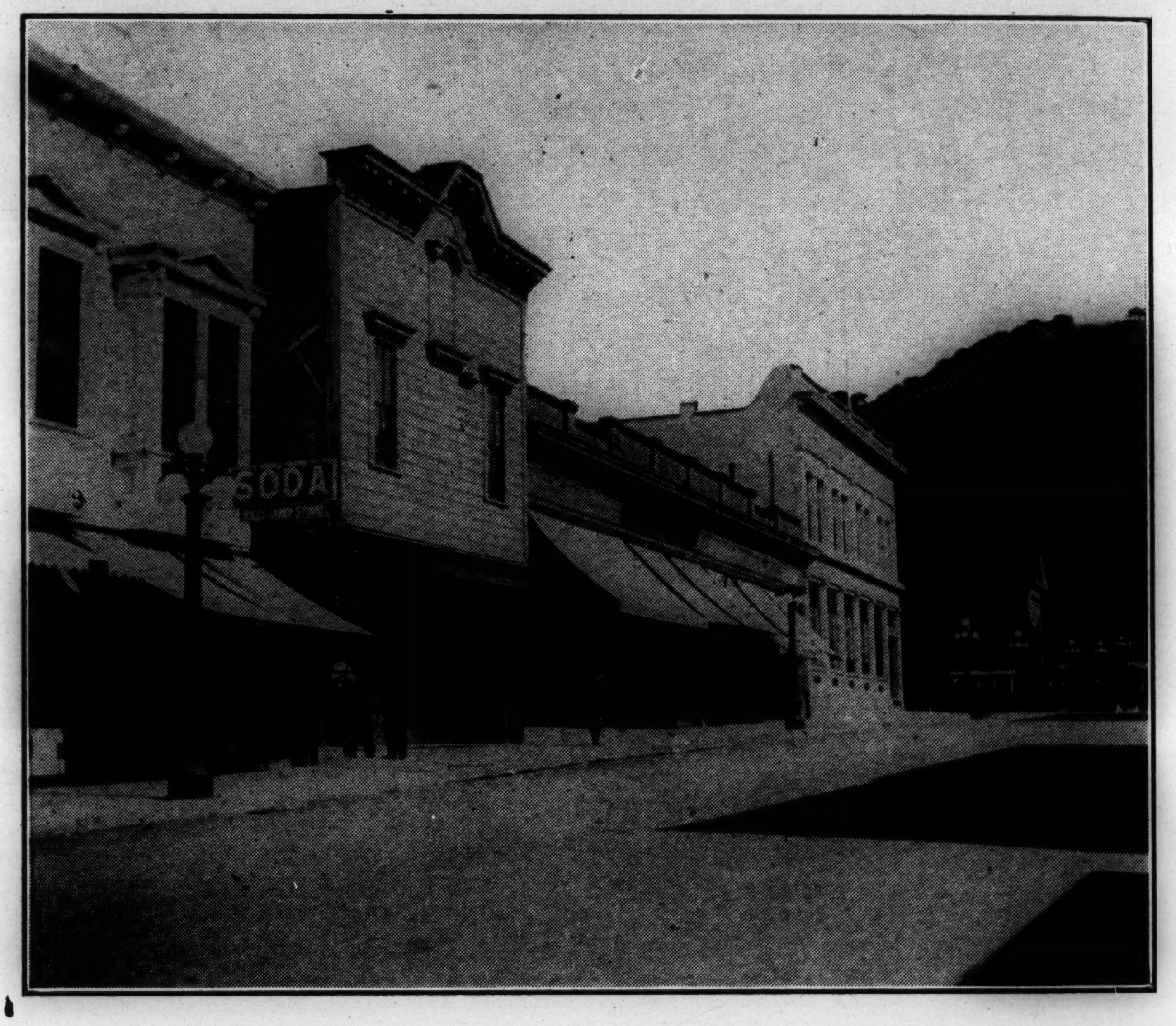
At the time (August) of the writer's visit, mosquitoes were not troublesome at Laws, for the evenings were usually spent under the trees in the hotel yard, where entertainment was furnished by the hotel phonograph. Furthermore, the various individuals interviewed were positive that mosquitoes were never bad in the Owens Valley. If so, the condition is very different from that which exists in other irrigated sections of the West, for mosquitoes are usually one of the unpleasant features of irrigated pasture land.

The stickleback, another small fish, has been tried as a mosquito exterminator, in parts of the state, with some success, but only a thorough trial can show whether this top-minnow can be used in territory outside of Owens Valley. Probably it can be of use in any permanent fresh-water marshland in the state, up to 3,000 or 4,000 feet elevation. Top-minnows of other species have been introduced with considerable success into Hawaii to combat mosquitoes.

The public health problem is not entirely a scientific problem, viewed from the standpoint of scientific medicine. It is much broader. It includes a study of social questions and their relation to disease, as well as a study of the application of the strictly scientific principles. The public health nurse must have a broad knowledge of the working and the application of all the useful social activities that make for a better people as well as a healthier people. Besides being a trained nurse, she must be a teacher; a social worker; a broad-minded, well-balanced, kind-hearted and sympathetic individual, whose highest ambition it is to help a suffering humanity. She must have the viewpoint of the private nurse and a broad knowledge of her relation to the public health field.—*Wm. DeKleine, M.D., Lansing, Mich.*

THE CLEAN FRONT AND

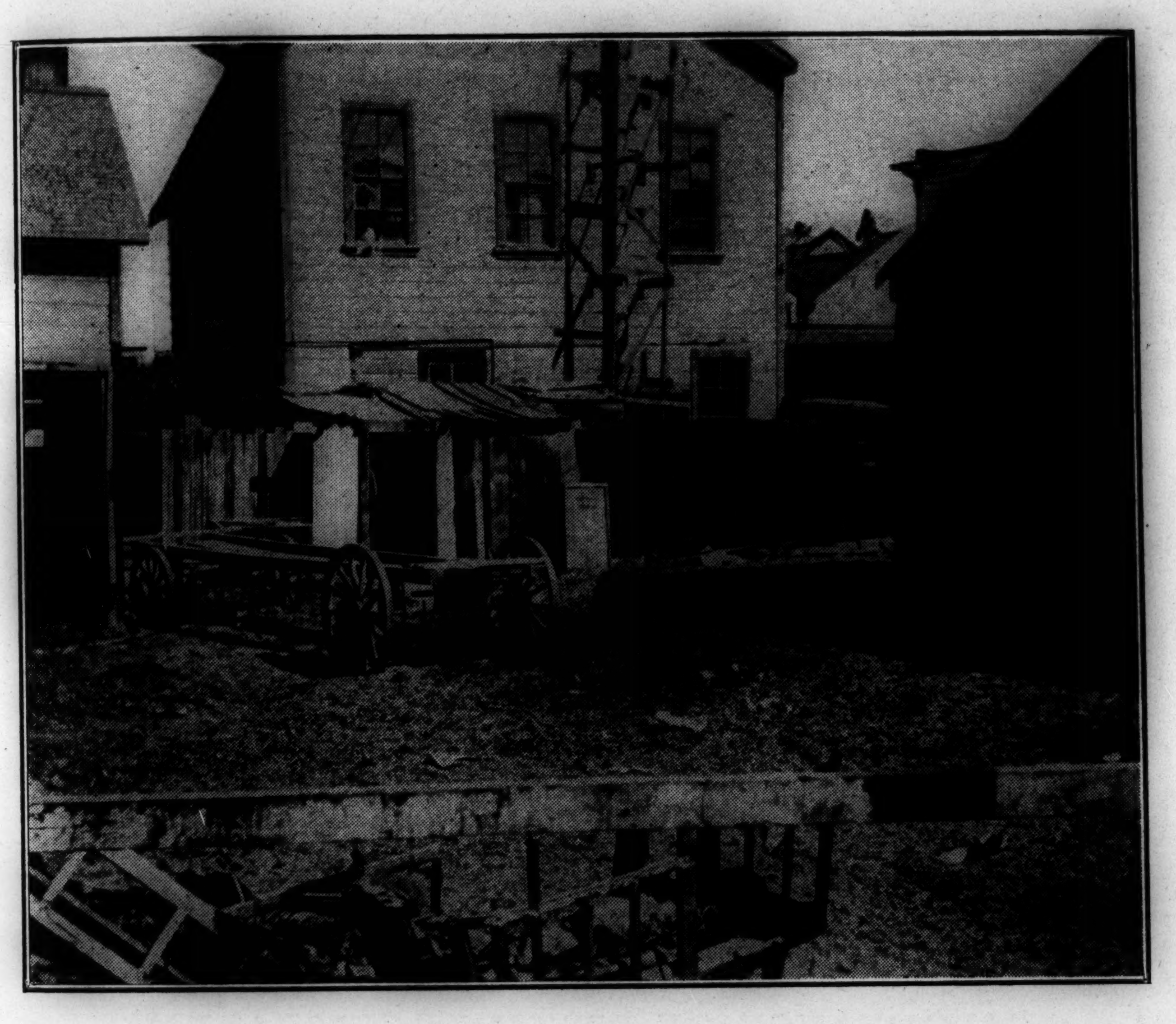
A STORY OF SANITATION



The clean front. One of the main business streets of a California city—clean and well kept. This picture shows conditions that are typical of a modern small city. The streets are well paved and artistically illuminated. New buildings are gradually replacing the old, but all look neat and substantial. Note the front of the candy store at the left. In the march of progress, sanitation is sometimes forgotten, and the handsome exterior of a city block often conceals an abundance of filth, as is illustrated in the picture opposite.

THE FILTHY REAR.

BUT SKIN DEEP.



The filthy rear. The same buildings from the rear, showing horse lot occupying the center of the block. The rear of the candy store is seen in the center. Machinery for making ice cream is in the open, unscreened shed. A bakery and other places where foods are handled are close by. Flies breed in the manure near the barn and the whole lot is deeply covered with manure.

THE NEED OF TRAINED PUBLIC HEALTH NURSES.

The first thing that is needed to carry on health work of any kind, whether it is tuberculosis or otherwise, in every community, is organization; not a charitable affair, which is made up of a few interested citizens, but boards of health, properly organized, competently manned, sufficiently financed by local or state government and built up along the lines of efficiency. Prevention of disease is a business proposition. If we expect the business to bring results, the organization must be built up on a business basis, with men and women in charge who are trained in the business. Short of that, we can never hope to get results.

We need the organization first before we should proceed to do things. We need competent individuals in control who make themselves responsible for working out the details of a complicated problem. If we were to start in the business of manufacturing a commercial product with the expectation of making a handsome profit, we would first of all demand that the undertaking be properly organized and that individuals be placed in charge who are qualified. If we expect to get results in health matters, we must organize the health supervision of every community, on a business basis. The work must be taken out of hands of the incompetent and placed in the hands of trained individuals. I consider health protection far more important than either police or fire protection, and yet we are spending from $1.00 to $2.50 per capita annually for fire protection; from 50 cents to $2.00 for police protection and only from one cent to about twenty cents per capita for health protection. What can you expect from health organizations which are dependent for success upon charity, upon time stolen from other business, and upon inefficiency?—*From a paper read by Dr. Wm. DeKleine before the Michigan State Nurses' Association.*

IMPORTANCE OF BIRTH REGISTRATION.

Some of the reasons why parents should be interested in having the births of their babies recorded are as follows:

In order that figures may be available upon which to base the accurate study of the problems connected with infant mortality.

In order that the individual may have a record to refer to in all questions relating to inheritance, property rights and identity.

In order that exact ages may be definitely known, thus making possible the enforcement of the laws regulating school attendance, child labor and the age of consent.

In order that the immediate public recording of a child's birth may notify the public health authorities and thus make it possible to offer the necessary help to mother and child in cases in which the family may not be able to afford adequate medical and nursing care. Blindness among children in many cases is due to causes easily preventable by proper attention at birth.—*From "Birth Registration Tests," The Children's Bureau, Department of Labor, Washington, D. C.*

PROCEEDINGS OF THE EIGHTH ANNUAL CONFERENCE OF STATE, COUNTY, AND MUNICIPAL HEALTH OFFICIALS.

The Eighth Annual Conference of state, county and municipal health officials met as the Department of Public Health of the League of California Municipalities in Visalia from October 9 to 13, 1916. Only a brief outline of the proceedings can be given here.

Monday, October 9, 1916.

The convention was called to order at 1.30 p.m. by its president, Dr. W. A. Sawyer. In his introductory remarks he spoke of the important new problems of the California health officer, including the enforcement of the new milk law, the combatting of malaria under the mosquito abatement act, and the control of typhus fever.

In the absence of Dr. R. L. Taylor of Long Beach, secretary of the conference, Mr. Harold F. Gray, assistant health officer of San Jose, was elected secretary pro tem.

An address of welcome was delivered by Mr. Bailey, president of the Visalia Board of Health. The roll call of delegates followed, and each was requested to state his principal public health problems and accomplishments during the past year. Among the subjects taken up were the following: The reporting of communicable diseases, prevention of stream pollution, the disposal of sewage and also cannery and distillery wastes, the abatement of nuisances, the prevention of diphtheria, hookworm, leprosy, tuberculosis and infant mortality, the enforcement of the new milk law, free vaccination against smallpox and typhoid fever, birth registration, and the organization of health departments. The discussion following the roll call was participated in by Doctors Temple, Sawyer, Hieronymus and Mr. Gray. Dr. Hieronymus and Mr. Gray were appointed by the chair as a committee on health protection in the schools. This committee was to take up the matter of the need for legislation providing that the abscences of children who are excluded from school on account of communicable diseases shall not count against the average daily attendance in determining the amount of state school funds to be paid. This special committee was to prepare a resolution for action by the conference.

At 3.30 p.m. the regular session adjourned and the delegates were taken to the Tulare County Hospital, where Dr. Preston showed them a Mexican peon, recently from Mexico, who had a severe and typical attack of typhus fever. The patient showed the characteristic eruption and prostration. All of the delegates had opportunity to see him on this and subsequent days. Some of the delegates went in automobiles to Traver, where they visited the railroad camp from which the patient had been taken, and became familiar with the control measures.

Tuesday, October 10th.

Mr. F. W. Andreasen, secretary of the State Dairy Bureau, read a paper on "What the State Dairy Bureau Expects to Do to Enforce the

New Milk Law." The paper aroused much interest and was followed by a spirited discussion in which the following delegates participated: Mr. Gray, Doctors Temple, Force, Black, Kellogg, Blake, Benton, Pomeroy, Carpenter and Mr. Andreasen. Dr. Stanley P. Black, health officer of Pasadena, emphasized the importance of basing the grading of milk on the average of a considerable number of bacterial counts. Dr. Charles R. Blake, health commissioner of Richmond, reported that compliance with the law in his city had been simplified by compelling pasteurization of all milk except certified milk. He stated that the establishment of pasteurization had been followed by a marked reduction in typhoid fever and infantile diarrhea. Dr. J. L. Pomeroy, health officer of Los Angeles County, urged the establishment of local health districts as a means of making a greater number of milk inspecting departments possible and thus facilitating the enforcement of the law.

The meeting then adjourned to meet in a motion picture theatre, where Dr. William Simpson, health officer of Santa Clara County, gave a lecture on "The Value of Pasteurization of Milk." The lecture was illustrated by lantern slides. Dr. W. H. Kellogg, director of laboratories in the San Francisco Health Department, read a paper, illustrated by lantern slides, on "Some Changes Effected as a Result of Inspection of San Francisco Dairies." The meeting then adjourned. At 1.15 p.m. the conference met again in the regular meeting place in Moose Hall.

Dr. James G. Cumming, director of the Bureau of Communicable Diseases of the State Board of Health, read a paper on "The Communicability of Poliomyelitis." Dr. Black of Pasadena opened the discussion and reviewed the evidence regarding the manner of transmission of poliomyelitis. He warned against the general use of antiseptic nasal sprays. Dr. Sawyer, secretary of the State Board of Health, protested against health officers taking advantage of the general fear of poliomyelitis in order to bring about various movements not related to poliomyelitis control, such as clean-up campaigns. He urged that the control of poliomyelitis should be based on the generally accepted opinion that the disease is transmitted by contact from person to person and that healthy carriers play a large part in its spread. The paper was discussed also by Doctors Simpson, Hieronymus, Gallup, Pomeroy, Baird, Corey, Browning and Force.

A paper on "The Problem of the Diphtheria Carrier," by Dr. T. B. Maher, chief medical inspector of schools in San Francisco, was read by Dr. W. H. Kellogg. The discussion was participated in by Doctors Preston, Kellogg, Blake, Benton, Hieronymus and Mr. Gray. Dr. Kellogg testified that the removal of diseased tonsils in persistent diphtheria carriers was giving good results in clearing the throats of diphtheria bacilli. Dr. J. J. Benton, health officer of Berkeley, reported good results in controlling diphtheria by rigid control of diphtheria carriers. He outlined his plan for establishing carrier schools in future outbreaks to prevent interruption of the education of school children who are carriers and are shown to be immune by the Schick test. In closing the discussion, Dr. Kellogg advocated the use of the Schick test to reduce the amount and expense of antitoxin needed for immunization.

A general discussion of "The Problem of Typhus Fever" was opened by Dr. James G. Cumming, in the absence of Dr. L. St. John Hely, who was to have read a paper on the subject. Dr. Cumming told of the recent introduction of typhus fever into California from Mexico through Texas. He described the control measures which the Bureau of Communicable Diseases were enforcing in order to eradicate body lice from the clothing, persons and dwellings of the Mexican peons who were bringing the disease into the state. He spoke of the detention camps at which imported Mexican railroad laborers were deloused and detained for a period of fifteen days by order of the State Board of Health. Drastic steps were being taken to prevent the disease from gaining a foothold and becoming endemic. Dr. J. L. Pomeroy, health officer of Los Angeles County, reported that, in his county, typhus fever had been taken for measles, typhoid fever, and even tuberculosis. In connection with control work in his county he has listed all railroad camps and the names of the laborers, and has had each place visited by public health nurses. Dr. Sawyer concluded the discussion.

Dr. J. N. Force, assistant professor of epidemiology in the University of California, read a paper on "Methods for the Reduction of Secondary Infection in Smallpox Vaccination." The paper was illustrated by charts, diagrams, and numerous photographs. As the hour was late and some members had not yet seen the typhus fever patient at the county hospital, the discussion of Dr. Force's instructive paper was postponed until the next session.

Wednesday, October 11th.

The meeting began at 9 a.m. with a discussion of Dr. Force's paper. Dr. B. T. Mouser, health officer of Piedmont, told of the early history of vaccination in California and protested against cross-scarification. He urged that a campaign be undertaken for better vaccination. Dr. Jackson Temple urged that the charge of physicians for vaccination should be made as small as possible. Doctors Shaw, Sawyer, Kirby Smith and Browning continued the discussion. Dr. Browning asked that the State Board of Health publish and distribute Dr. Force's paper with its pictures showing the proper technique for vaccination. Dr. Sawyer stated that the State Board of Health had already made plans for a bulletin on smallpox and vaccination, and intended to include Dr. Force's paper.

Dr. A. H. Sweeney, health officer of the city of Fresno, spoke on "Clean-up Campaigns." He placed emphasis on the importance of creating public interest and support of the movement and outlined the methods which he had found successful in Fresno. Letters to civic bodies, prominent citizens, city officials and physicians were sent out first, and an active campaign through the press was carried on for three or four days before the clean-up. The school children were also enlisted for the work, and those who participated in the work were given free tickets to a moving picture show. The use of wagons and nearly all other services were donated. Dr. Temple, Dr. Benton and Mr. Christian Hoff, commissioner of health and safety in Berkeley, told of their experiences and methods. In Berkeley the police inspect all premises semiannually and serve notices wherever necessary. Dr. Black went on record in favor of perpetual, rather than sporadic, clean-up campaigns, by means of continuous inspection. In answer to a question, Mr. Louis Olsen, assistant health officer of Palo Alto, described the

Palo Alto garbage incinerator and collection system. The fees are collected by the city office along with charges for water and light. Dr. Pomeroy spoke of the value of garbage as hog feed, and Professor M. E. Jaffa, consulting nutrition expert of the State Board of Health, stated that he did not advise the use of garbage as hog feed, from the standpoint of nutrition, unless it was very carefully sorted. Dr. Temple participated in the discussion.

In the absence of Dr. L. M. Powers, health commissioner of Los Angeles, who was in attendance at the Southwestern Conference on Tuberculosis in Albuquerque, his paper on "Suggestions as to the Problem of the Abatement of Nuisances" was not read, but the subject was discussed by Mr. Harold F. Gray, assistant health officer of San Jose, who held that nuisance abatement took up the energy of health departments to the detriment of their real public health work. He urged that nuisance abatement be made a function of the police department as far as possible. Doctors Kirby Smith, Pomeroy, Force, Mr. Keinle and Mr. Walsh participated in the discussion.

"Cooperation Between Health Officers and Social Workers" was the subject of a paper by Dr. F. E. Corey, health officer of Alhambra. The following took part in the discussion: Mr. Gray, Doctors Benton, Rice, Sawyer and Shaw.

Professor W. B. Herms, consulting parasitologist of the State Board of Health, then read a "Progress Report on the Statewide Mosquito Survey for the State Board of Health." (This report was published in the October Monthly Bulletin of the State Board of Health.) The paper was discussed by Dr. Temple, who asked that next year's program contain reports on the work of the organized mosquito abatement districts. Dr. Sawyer stated that Professor Herms' trip had improved the reporting of malaria, and that, strange to say, the number of reported deaths decreased as the number of reported cases rose. He felt that this was due to greater interest in diagnosis and therefore less tendency to specify malaria as the cause of death when in doubt. He stated that any committee having in hand the organization of a mosquito abatement district will be assisted by the State Board of Health if they will ask for help. Remarks by Dr. Corey and Professor Herms concluded the discussion.

After the noon recess and in the evening the conference participated in the general sessions of the League of California Municipalities. Papers on the newer methods of sewage disposal were read and discussed.

Thursday, October 12th.

In the forenoon the delegates were entertained by the physicians of Tulare County, and were taken on an automobile tour through the citrus belt of Tulare County. In the afternoon the meetings were resumed.

Dr. J. L. Pomeroy, health officer of Los Angeles County, read a paper on "Practical Problems in the Management of the County Health Office." The paper was discussed by Doctors Blake, Temple, Mr. Gray, Doctors Corey, Simpson, Black, Sawyer and Pomeroy.

"The Problem of Rural Quarantine" was the subject of a paper by Dr. J. H. Shaw, health officer of Sonoma County. In discussing the paper, Dr. Pomeroy advised hospitalization of cases where adequate quarantine can not be maintained at home. Doctors Simpson, Sawyer, Blake, Force, Temple, Mouser and Mr. Gray discussed the paper. The discussion centered largely in the health protection of school children, and emphasis was placed on the importance of finding and isolating cases of infectious disease and carriers and discontinuing the fumigation of schools. Dr. Mouser and Mr. Gray stated that they had received excellent cooperation from school teachers in the exclusion of infectious pupils. Mrs. Norman Schofield, health officer of Sunnyvale, asked what should be done with school books in connection with the control of infectious disease. Dr. Sawyer advised that books known to have been contaminated by infectious persons be destroyed, and that the other books be continued in use, or, at the most, withdrawn from circulation for a few months.

In the evening the people of Visalia served a Spanish banquet to all the delegates and guests of the League of California Municipalities in the spacious new Municipal Auditorium. The generous hospitality of the people of Visalia was fully appreciated, and the occasion was thoroughly enjoyed by the delegates. The first of the after-dinner speeches was given by Professor Thomas H. Reed, city manager of San Jose, and it was gratifying to the health officials to hear his emphatic statements relative to the importance of the reorganization and strengthening of the health department under his administration.

Friday, October 13th.

The business meeting was called to order at 9 o'clock. In the absence of Mr. B. D. Marx Greene, city attorney of Antioch and Pittsburg, chairman of the committee on legislation, the report of the committee was read by Dr. J. N. Force. Two proposed acts, providing for state and local health districts, were read before the conference as part of the report. The committee presented three resolutions for adoption as follows:

> *Resolved*, That the Department of Public Health of the League of California Municipalities at the annual convention held in Visalia, recommends the passage of the two state acts: one providing for the formation of six state health districts under the State Board of Health with the appointment of state district health officers and state sanitary inspectors; and the other enabling municipalities to combine with each other and intervening and surrounding territory into local health districts for the purpose of maintaining efficient administrations under the direction of whole-time health officers.
>
> *Resolved*, That it is the sense of the Department of Public Health of the League of California Municipalities that section 4225 of the Political Code be amended to permit the board of supervisors of any county to appoint for any unincorporated territory within such county a health officer who shall be under the supervision of the county health officer, and to fix his compensation.
>
> Whereas the allotment of state school funds is apportioned on the average daily attendance; and
>
> Whereas there is a disposition on the part of local school authorities to allow children, suffering from minor communicable diseases, to continue in school in order to avoid loss of state school funds, owing to the lowered average daily attendance; therefore be it
>
> *Resolved by Annual Conference of the Department of Public Health of the League of California Municipalities*, That the State Board of Education be requested to take steps to secure the passage of legislation allowing the exclusion of children by state or local health authorities without consequent financial loss to the school, provided that this period of exemption from loss shall not exceed thirty school days, for any one child in any one half-year.

The report was discussed by Doctors Arthur, Blake, Simpson, Force, Smith, Sawyer, Temple and Pomeroy, and was adopted by the conference. The three resolutions were passed unanimously. Dr. J. H. Shaw was appointed a committee of one to transmit the resolutions to the committee on resolutions of the League of California Municipalities. Before the adjournment the announcement was made that all three resolutions had been considered by the league and had been adopted.

Dr. F. W. Browning moved that the proposed laws for the establishment of state and local health districts be referred to the State Board of Health with the request that they be introduced in the next legislature and that copies of the bills be sent to all local health officers. The motion was seconded by Mr. Gray and carried unanimously.

On motion of Dr. Preston, seconded by Dr. Smith, the committee on legislation was continued as constituted.

Mr. H. F. Gray presented the report of the committee on standard forms for health departments. Each form was presented separately and discussed by the delegates present. The report was accepted and the committee discharged and thanked. On motion of Dr. Temple, duly seconded, the forms containing "Instruction to Households" for use in the presence of communicable diseases, were referred to Dr. Sawyer with the request that he edit them and print them in the Monthly Bulletin of the State Board of Health.

Dr. Force reported, for the committee on membership in the American Public Health Association, that application blanks for membership and a letter outlining the advantages in joining the association had been sent to one hundred health officers. Dr. Force presented also the report of the committee of one on correspondence courses in public health. He explained that a correspondence course in public health would duplicate, in part, the publications of the State Board of Health, and that the need for such a course was not great. Both reports were accepted and the committees were discharged with thanks.

Dr. F. W. Browning moved that a vote of thanks be extended to the people of Visalia, and particularly to the physicians of Visalia and to Dr. Addison W. Preston, for their hospitality and cordial welcome. The motion was seconded and unanimously carried. The secretary was instructed to inform Dr. Preston of this action.

Dr. William Simpson moved that a vote of thanks be extended to Dr. Jackson Temple, chairman of the program committee, for the excellent program provided for the meeting. The motion was seconded and carried unanimously.

The section then proceeded to the election of officers. The following officers were elected by acclamation:

President, Dr. Wilbur A. Sawyer.
Vice president, Dr. F. W. Browning.
Secretary-treasurer, Mr. Harold F. Gray.

It was moved by Dr. Smith, seconded by Dr. Browning, that a program committee consisting of five persons be appointed. The motion was carried. The chair appointed the following delegates as members of the committee: Doctors Jackson Temple (chairman), Wicherski, Benton, Preston and Mrs. Schofield.

It was moved by Dr. Pomeroy and seconded that a committee be appointed by the chair to study the plans formulated by the State

Commission on Social Insurance and to report to the next meeting upon the relations of public health and health officials to health insurance. The motion was carried. Dr. Sawyer announced the following membership for this committee: Doctors Pomeroy (chairman), Shaw and Force.

The Public Health Department of the League of California Municipalities then adjourned to meet at Santa Rosa in 1917.

HAROLD F. GRAY, Secretary pro tem.

Delegates Present.

1. W. A. Sawyer, M.D., Secretary of the State Board of Health.
2. Jackson Temple, M.D., Health Officer, Santa Rosa.
3. F. W. Andreasen, Secretary of the State Dairy Bureau.
4. Stanley Black, M.D., Health Officer, Pasadena.
5. O. G. Wicherski, M.D., Health Officer, San Diego County.
6. J. L. Pomeroy, M.D., Health Officer, Los Angeles County.
7. J. G. Cumming, M.D., Gr. P.H., Director, Bureau of Communicable Diseases, State Board of Health.
8. N. J. Rice, M.D., Health Officer, Pomona.
9. J. H. Shaw, M.D., Health Officer, Sonoma County.
10. J. I. Clark, M.D., Health Officer, Santa Ana.
11. J. F. Peery, M.D., Health Officer, Corcoran.
12. Mrs. Norman Schofield, Health Officer, Sunnyvale.
13. A. W. Preston, M.D., Health Officer of Visalia and Tulare County.
14. A. H. Domann, M.D., Health Officer, Orange County.
15. C. A. Peares, State Dairy Inspector, Tulare County.
16. N. H. Sawyer, Milk Inspector in San Joaquin Valley for Los Angeles.
17. Louis Olsen, Assistant Health Officer, Palo Alto.
18. T. Carpenter, V.S., City Veterinarian and Food Inspector, Alameda.
19. Wm. L. Hood, M.D., Health Officer, Tuolumne County.
20. C. G. Shipman, M.D., Health Officer, Santa Monica.
21. B. T. Mouser, M.D., Health Officer, Piedmont.
22. F. W. Browning, M.D., Health Officer, Hayward.
23. G. W. Long, M.D., Health Officer, Fresno County.
24. L. Michael, M.D., Health Officer, San Leandro.
25. Christian Hoff, Commissioner of Public Health and Safety, Berkeley.
26. John O. Walsh, Chairman, Committee on Public Health, San Francisco Board of Supervisors.
27. R. H. Ellithorpe, Plumbing and Sanitary Inspector, Fresno.
28. J. E. Kienle, Executive Secretary, Housing Commission, Health Department, Los Angeles.
29. W. L. Scales, Sanitary Inspector, Fresno.
30. E. A. Arthur, M.D., Health Officer, Stockton.
31. G. L. Lynch, M.D., Health Officer, Amador County.
32. G. H. Roth, M.D., Assistant Health Commissioner, Los Angeles.
33. J. Clark, M.D., Health Officer, Gilroy.
34. J. N. Force, M.D., Gr. P.H., Assistant Professor of Epidemiology, University of California.
35. Harold F. Gray, Gr. P.H., Assistant Health Officer, San Jose.
36. Wm. Simpson, M. D., Htalth Officer, Santa Clara County.
37. R. L. Fernald, Councilman, Richmond.
38. H. A. Gallup, M.D., Health Officer, San Luis Obispo and Arroyo Grande.
39. F. E. Corey, Health Officer, Alhambra.
40. J. G. Baird, M.D., Health Officer, Riverside County.
41. W. H. Kellogg, M.D., Director of Laboratories, San Francisco Health Department.
42. W. C. McLean, D.V.S., Health Officer, San Mateo City.
43. Charles R. Blake, M.D., Health Commissioner, Richmond.
44. Alex Hull, Health Officer, Napa City.
45. J. J. Benton, M.D., Health Officer, Berkeley.
46. R. G. Dufficy, M.D., Health Officer, San Rafael.
47. A. Hieronymus, M.D., Health Officer, Alameda.
48. M. Hirspring, Assistant Dairy Inspector, Alameda.
49. G. D. Whitaker, State Dairy Inspector, Fresno.
50. H. E. Piper, M.D., Health Officer, Santa Cruz.
51. Professor W. B. Herms, Consulting Parasitologist, State Board of Health, Berkeley.
52. Professor M. E. Jaffa, Consulting Nutrition Expert, State Board of Health, Berkeley.
53. Dr. Kirby Smith, Health Officer, Oakland.

Officers and Standing Committees.

Officers.

President----Wilbur A. Sawyer, M.D., Secretary State Board of Health, Sacramento
Vice president------------------Fred W. Browning, M.D., Health Officer, Hayward
Secretary-treasurer-----Harold F. Gray, Gr. P.H., Assistant Health Officer, San Jose

Program Committee.

Jackson Temple, M.D., Chairman----------------------Health Officer, Santa Rosa
O. G. Wicherski, M.D.----------------------------------Health Officer, San Diego
J. J. Benton, M.D.--Health Officer, Berkeley
W. A. Preston, M.D.-------------------Health Officer, Visalia and Tulare County
Mrs. Norman Schofield----------------------------------Health Officer, Sunnyvale

Committee on Health Insurance in Its Relation to Public Health.

J. L. Pomeroy, M.D., Chairman-----------------Health Officer, Los Angeles County
J. H. Shaw, M.D.----------------------------------Health Officer, Sonoma County
J. N. Force, MD., Gr. P.H.--
----------------Assistant Professor of Epidemiology, University of California

Committee on Legislation.

B. D. Marx Greene, Chairman-------Attorney for Antioch and Pittsburg, Berkeley
Wilbur A. Sawyer, M.D., Secretary------------------------------------
------------------------Secretary of the State Board of Health, Sacramento
William Simpson, M.D.---------------Health Officer, Santa Clara County, San Jose
George E. Ebright, M.D.-----------President, State Board of Health, San Francisco
Stanley P. Black, M.D.-----------------------------------Health Officer, Pasadena

CHLORINATING OYSTERS.

In the July Bulletin of the California State Board of Health we are told that many cities chlorinate their water supply; that 22 municipalities in California, representing a population of a million people, now disinfect their water supply by this method. What is good for humans seems also to be good for the oyster wherever it is compelled to use polluted water. Experiments conducted by the sanitary chemist for the state of Maryland, have demonstrated that a practical application of this method can be made to oysters. At feeding temperatures large volumes of water, from 25 to 50 gallons, are passed through the siphon of each oyster and over its gills. The food captured by the oyster from this stream of water passing over the gills passes through its gastro-intestinal system within five hours, so that only a very short time is required for its artificial purification by the chlorinating method. There appears to be no reason why this method can not also be applied to clams and other shellfish. This appears to be an extremely important discovery, for oysters and clams grow best in bays and estuaries that receive the fresh water of some stream or river. These are the locations that are most frequently subject to pollution. It has frequently happened that oyster and clam beds have had to be abandoned temporarily, and in some cases permanently, because of the very real danger of spreading typhoid and other water-borne diseases. If the chlorination method will work, and we are assured it will, there will be no need to condemn any oyster or clam bed. It will only be necessary to require that the oysters or clams be chlorinated. In the process the oysters are placed in water that has been treated with a trace of calcium hypochlorite, in the same proportion as is used in drinking water. Treatment requires about six hours and it is stated that the oysters show no change in condition and it is impossible to distinguish any difference in flavor between treated and untreated ones.—N. B. Schofield in "California Fish and Game."

REPORT OF PLAGUE SUPPRESSIVE MEASURES FOR OCTOBER, 1916.

C. L. **Williams**, Passed Assistant Surgeon, United States Public Health Service, in charge Joint Federal and State Plague Suppressive Measures.

During the month of October, 1916, ground squirrel eradicative measures have been restricted almost entirely to the placing of poisoned grain which has been distributed in large quantities, frequently in ton lots. A number of large ranch owners completed the work on their lands this month, which accounts in many instances for the use of poisoned grain in large quantities. The lands on which infected ground squirrels were found in the spring of this year have been receiving particular attention and have practically all been thoroughly treated at this date, together with the adjoining lands on all sides.

The general interest in ground squirrel eradication in counties where no plague infection exists is noticeably on the increase. Requests are constantly received from different parts of the state for information in regard to methods of killing squirrels and not a few persons ask that the state law be enforced in counties where they reside, as well as in infected counties.

There has been of late little opposition to squirrel eradication and it has not been necessary to enforce the state law in a single instance during this month. Through the College of Agriculture of the University of California the cooperation of the county farm advisers has been secured in such counties as these advisers operate at present. Their assistance is greatly appreciated and is of quite considerable value, since these men are in close touch with the farmers and enjoy their confidence. While the farm advisers at present operate in only a few counties the system is extending and it is hoped that all of the infected counties will in time have them.

Appended is a tabulation of squirrel eradicative work in the month of October, 1916.

Tabulated Report of Work Accomplished During October, 1916.

Number of inspections and reinspections of lands	2,149
Acres inspected and reinspected	900,245
Acres treated with poisoned grain	338,210
Acres treated with waste ball method	4,583
Number of holes treated	11,057

REPORT OF THE MEETING OF THE STATE BOARD OF HEALTH, NOVEMBER 4, 1916.

The regular meeting of the State Board of Health was held in Sacramento on November 4, 1916. There were present Doctors George E. Ebright, F. F. Gundrum, Edward F. Glaser, Robert A. Peers, and W. A. Sawyer.

A communication from Dr. Lela J. Beebe, state chairman of the Department of Legislation of the California Federation of Women's Clubs, announced that the federation, through its executive board, endorsed the proposed bill providing for the division of the state into six health districts under the State Board of Health, and for the appointment of state district health officers and state sanitary inspectors.

In response to a communication, the board expressed the opinion that the regulation of the depth of graves had best remain subject to local rather than state regulation.

The city clerk of a California city was given opportunity to appear before the board and show cause why he should not be prosecuted for violating the State Registration Act by delaying in transmitting birth and death reports. On receiving assurances that he would observe the law strictly the case was dismissed with a warning that any repetition of the offense would be followed by prosecution.

Regulations for the prevention of typhus fever in railroad camps were adopted.

A request was received that the rabies quarantine in Lassen County be modified or terminated. An immediate investigation of conditions was ordered with a view to determining whether such action would be justified.

Charges that a certain physician had concealed a case of scarlet fever were dismissed, as the evidence showed that he had reported the case to the health officer as suspected scarlet fever in ample time for precautions to be taken by the health officer.

The resignation of Professor Charles Gilman Hyde as consulting engineer was accepted and the thanks of the board were extended to Professor Hyde for the years of service which he had devoted to the engineering work of the board, and also for his successful efforts in establishing and developing an efficient bureau of sanitary engineering.

A report was received from the Bureau of Sanitary Engineering relative to the continued and dangerous pollution of the Merced River by concessioners in the Yosemite National Park. Instructions were given to the secretary to take the matter up with the Department of the Interior and to proceed against the individual concessioners under the state stream pollution laws, if necessary.

In accordance with the recommendation of the Director of the Bureau of Sanitary Engineering, a permit was granted to the city of Chino to dispose of its sewage by irrigation, and a temporary permit was given to the city of Los Angeles to dispose of its untreated sewage into the ocean, pending the results of the proposed bond election for the installation of Imhoff tanks. A temporary permit was given to the city of Hanford to continue to dispose of sewage on its sewer farm.

The plans of the proposed Los Angeles Tuberculosis Hospital were discussed. The floor plan and the modified plan for the roof and the drainage system of the grounds were approved. The board held that certain expenditures were not justified, as they could better be made for increasing the bed capacity.

Three applications for certificates as registered nurse were granted on the recommendation of the Director of the Bureau of Registration of Nurses.

On the recommendation of the Director of the Bureau of Foods and Drugs licenses to operate cold storage warehouses were granted.

Consideration was then given to numerous cases of alleged violations of the Pure Foods and Drugs Act, and hearings were held as provided by law.

W. A. SAWYER, *Secretary.*

REPORT OF THE BUREAU OF ADMINISTRATION FOR OCTOBER, 1916.

WILBUR A. SAWYER, M.D., Director.

MORBIDITY REPORTS.

GUY P. JONES, Morbidity Statistician.

Poliomyelitis.

Twenty-one cases of poliomyelitis were reported during October, as against thirteen reported during September, eighteen during August, twelve during July and four in June.

Typhoid Fever.

There were eighty-five cases of typhoid fever reported during October, as against one hundred and thirty-one cases during September. Judging from the morbidity and mortality reports for typhoid fever so far, there will be a great diminution in both case and death rates for this disease in 1916.

Smallpox.

There were but six cases of smallpox in California during October; four of these were in an institution in Alameda County, three out of the four undoubtedly resulting from contact with the first case.

Epidemic Cerebrospinal Meningitis.

There were but three cases of epidemic cerebrospinal meningitis during October. All of these were in southern California.

Malaria.

One hundred and nine cases of malaria were reported during October. Health officers continue to report cases of this disease much better than they have in the past.

Typhus Fever.

Four cases of typhus fever were reported during October. All of these were in the persons of Mexican laborers recently arrived from El Paso. There was one case in Fresno County, one in Kern County, one in San Bernardino County and one in Tulare County.

Scarlet Fever.

There were five hundred and twenty-nine cases of scarlet fever reported during October, as against one hundred and ninety-eight during September. While scarlet fever is exceedingly prevalent throughout the state, all cases are of a mild form. The increase during October was an average increase for this time of the year.

Beri-beri

One case of beri-beri was reported.

Anthrax.

Two cases of anthrax were reported during October.

SUMMARY.

Smallpox	6	Erysipelas	16
Typhoid	85	Mumps	235
Epidemic cerebrospinal meningitis	3	Pneumonia	96
Poliomyelitis	21	Tuberculosis	540
Malaria	109	Whooping-cough	72
Scarlet fever	529	Anthrax	2
Measles	196	Beri-beri	1
Diphtheria	159	German measles	2
Dysentery	2	Tetanus	2
Gonorrhea	41	Trachoma	9
Syphilis	62	Ophthalmia neonatorum	2
Chickenpox	160	Typhus	4

SANITARY INSPECTIONS.

Edward T. Ross, State Sanitary Inspector.

During the month of October inspections were made in Alameda, Lake, Napa, Sonoma, Solano, and Sacramento counties. Thirty-eight summer resorts were inspected, eight of which were found to be in satisfactory condition. In most instances the chief fault to be found was with the systems of sewage disposal. The sewage in many instances is deposited in running mountain streams which, during the summer months, are used by campers and others for domestic purposes.

A number of other inspections were made, the places visited being public schools, hotels, meat markets, vegetable markets, creameries, slaughter houses, sewage disposal systems and water supplies.

SUMMARY OF INSPECTIONS FOR OCTOBER.

Summer resorts	38	Slaughter houses	5
Public schools	4	Sewage systems	4
Hotels	4	Water supplies	2
Meat markets	5	Miscellaneous inspections	62
Vegetable markets	6		
Creameries	5	Total inspections	135

OUR PRESENT KNOWLEDGE OF INFANTILE PARALYSIS.

Many facts, such as the seasonal incidence and rural prevalence of the disease, have seemed to indicate that some insect or animal host, as yet unrecognized, may be a necessary factor in the spread of poliomyelitis, but specific evidence to this effect is lacking, and the weight of present opinion inclines to the view that poliomyelitis is exclusively a human disease, and is spread by personal contact, whatever other causes may be found to contribute to its spread. In personal contact we mean to include all the usual opportunities, direct or indirect, immediate, for the transference of body discharges from person to person, having in mind as a possibility that the infection may occur through contaminated food.

The incubation period has not been definitely established in human beings. The information at hand indicates that it is less than two weeks, and probably, in the great majority of cases, between three and eight days. * * *

At present our information demands the employment of the following administrative procedures in attempting to control the disease:

1. The requirement that all recognized and suspected cases be promptly reported.
2. Isolation of patients in screened premises. The duration of infectivity being unknown, the period of isolation must necessarily be arbitrary. Six weeks has been recommended by the Conference of State and Territorial Health Officers with the Surgeon-General of the Public Health Service as sufficient, and this period has been generally accepted throughout the United States.
3. Disinfection of all body discharges.
4. Restriction of the movements of intimate associates of the patient so far as practicable. This should include at least exclusion of the children of the family from schools and other gatherings.
5. Protection of children so far as possible from contact with other children or with the general public during epidemics.
6. Observation of contacts for two weeks and after the last exposure.

There is no specific treatment of established value in poliomyelitis. During the persistence of the acute symptoms of the disease the important principles of treatment are rest in bed, symptomatic relief, and passive support for the prevention of deformities. Active measures during this stage are not only useless, but are apt to cause serious and often permanent injury. Hospitalization of patients where possible is to be encouraged. The best chances of recovery from residual paralysis demand skillful after-care, often long continued, and always under the direction of a physician familiar with the neurological and orthopedic principles of treatment. The provision of such after-care often becomes a community problem, demanding the cooperation of all available agencies, social and professional.—*From a report on poliomyelitis by a committee of the American Public Health Association, October 27, 1916, Cincinnati, Ohio.*

REPORT OF THE BUREAU OF COMMUNICABLE DISEASES FOR OCTOBER, 1916.

JAMES G. CUMMING, M.D., Director.

Typhus Prevention in California.

Although typhus fever will never become epidemic in California, it has been the object of the State Board of Health in its investigation of the recent outbreak in railroad camps to guard against the extension of the disease to the large cities, where it would become endemic.

Cases of continued fever of more than seven days duration were studied from the records of the Massachusetts General Hospital, and from these Roger Lee concluded that Boston and vicinity gave a rate of one case of typhus to forty-seven of typhoid. Moreover, cases were reported as far west as Chicago and Milwaukee. There were fifty-five cases reported in New York alone during 1912. With the more accurate diagnosis of the disease it is evident that it has not disappeared from the United States, but on the contrary it has been present more or less continuously in the large eastern cities since the epidemics of the eighties and nineties.

Anderson and Goldberger in 1910 showed that Brill's disease and Mexican typhus are identical. Between the years 1896 and 1910 Brill reported 272 cases of this disease from the wards of the Mount Sinai Hospital in New York City. Brill summarizes his studies of the disease as follows: "An acute infectious disease of unknown origin and unknown pathology, characterized by a short incubation period, a period of continuous fever, accompanied by intense headache, apathy and prostration, and a profuse and extensive erythematous maculo-papular eruption, all of about two weeks duration; whereupon the fever abruptly ceases, either by crisis or by rapid lysis within three days, when all symptoms disappear." In addition to these symptoms we may call attention to the frequent occurrence of mild broncho-pneumonia and conjunctivitis in our series of California cases.

The first inspection of railroad section camps by this bureau during the week of September 18th showed that a large percentage of the men had body lice, and since twenty primary and three secondary cases of typhus had already occurred in section camps, it is evident that the railroad regulations for the control and prevention of typhus fever (printed in the October Bulletin) were necessary in order to prevent the spread of the disease, not only in the section camps but also to the large cities.

Had the disease been permitted to spread from the primary foci in the section camps to the large cities, where lousiness prevails among the poorer classes, there is reason to expect that it would have become endemic in the coast cities just as it now is in large eastern centers of population.

Since there have been no secondary cases of typhus reported since October 5th, it would seem that the measures of control have been effective. This result may be considered as due to the cooperation of the following factors:

1. The United States Public Health Service, which has supervised the delousing and inspection of all immigrant Mexicans at El Paso, Eagle Pass, Laredo, and Brownsville.
2. The railroads of the state which have established quarantine camps at various points under State Board of Health supervision for the detention of newly-arrived Mexican labor in such camps until the period of incubation shall have ended. Also, their issuance of posters, explanatory of the state's delousing regulations, printed in English and in Spanish for distribution in all section camps; and their compliance with the state regulations regarding the delousing of all Mexican section labor camps.
3. The state-wide inspection and in part reinspection of railroad Mexican labor camps by the State Board of Health.

It is to be expected that cases of typhus will occur among newly arrived Mexicans who have become infected before their emigration to the United States. In accordance with the regulations, these new arrivals will be placed in observation camps for a period of fifteen days. The camps are under medical supervision and the delousing procedure is instituted immediately upon entrance of the immigrant into the camp. When released from quarantine, these laborers are distributed as labor conditions necessitate, to secondary labor camps, by each railroad company. It follows that if the quarantine of these immigrants for the fifteen-day incubation period and their complete delousing upon arrival at the detention camp are fully complied with, all new cases of typhus will be limited to such primary immigrant cases as may occur in the observation camps.

Typhus Experiments in Guinea Pigs.

Blood was drawn from eight of the cases investigated by the bureau and inoculated into guinea pigs. As in two of the cases the blood was drawn after the crisis, no temperature was produced in the inoculated animals. In the other six cases, the guinea pigs developed, after an incubation period of from ten to twelve days, a temperature which persisted for from four to twelve days. Typhus virus so isolated is now in the fourth generation in guinea pigs. The production of fever in these animals after an incubation period of about ten days, in the absence of other symptoms and lesions, and the successful passage of the virus through several generations, may be considered as confirmatory of the diagnosis of typhus.

REPORT OF THE BUREAU OF COMMUNICABLE DISEASES FOR OCTOBER, 1916.

JAMES G. CUMMING, M.D., Director.

Typhus Prevention in California.

Although typhus fever will never become epidemic in California, it has been the object of the State Board of Health in its investigation of the recent outbreak in railroad camps to guard against the extension of the disease to the large cities, where it would become endemic.

Cases of continued fever of more than seven days duration were studied from the records of the Massachusetts General Hospital, and from these Roger Lee concluded that Boston and vicinity gave a rate of one case of typhus to forty-seven of typhoid. Moreover, cases were reported as far west as Chicago and Milwaukee. There were fifty-five cases reported in New York alone during 1912. With the more accurate diagnosis of the disease it is evident that it has not disappeared from the United States, but on the contrary it has been present more or less continuously in the large eastern cities since the epidemics of the eighties and nineties.

Anderson and Goldberger in 1910 showed that Brill's disease and Mexican typhus are identical. Between the years 1896 and 1910 Brill reported 272 cases of this disease from the wards of the Mount Sinai Hospital in New York City. Brill summarizes his studies of the disease as follows: "An acute infectious disease of unknown origin and unknown pathology, characterized by a short incubation period, a period of continuous fever, accompanied by intense headache, apathy and prostration, and a profuse and extensive erythematous maculo-papular eruption, all of about two weeks duration; whereupon the fever abruptly ceases, either by crisis or by rapid lysis within three days, when all symptoms disappear." In addition to these symptoms we may call attention to the frequent occurrence of mild broncho-pneumonia and conjunctivitis in our series of California cases.

The first inspection of railroad section camps by this bureau during the week of September 18th showed that a large percentage of the men had body lice, and since twenty primary and three secondary cases of typhus had already occurred in section camps, it is evident that the railroad regulations for the control and prevention of typhus fever (printed in the October Bulletin) were necessary in order to prevent the spread of the disease, not only in the section camps but also to the large cities.

Had the disease been permitted to spread from the primary foci in the section camps to the large cities, where lousiness prevails among the poorer classes, there is reason to expect that it would have become endemic in the coast cities just as it now is in large eastern centers of population.

Since there have been no secondary cases of typhus reported since October 5th, it would seem that the measures of control have been effective. This result may be considered as due to the cooperation of the following factors:

1. The United States Public Health Service, which has supervised the delousing and inspection of all immigrant Mexicans at El Paso, Eagle Pass, Laredo, and Brownsville.
2. The railroads of the state which have established quarantine camps at various points under State Board of Health supervision for the detention of newly-arrived Mexican labor in such camps until the period of incubation shall have ended. Also, their issuance of posters, explanatory of the state's delousing regulations, printed in English and in Spanish for distribution in all section camps; and their compliance with the state regulations regarding the delousing of all Mexican section labor camps.
3. The state-wide inspection and in part reinspection of railroad Mexican labor camps by the State Board of Health.

It is to be expected that cases of typhus will occur among newly arrived Mexicans who have become infected before their emigration to the United States. In accordance with the regulations, these new arrivals will be placed in observation camps for a period of fifteen days. The camps are under medical supervision and the delousing procedure is instituted immediately upon entrance of the immigrant into the camp. When released from quarantine, these laborers are distributed as labor conditions necessitate, to secondary labor camps, by each railroad company. It follows that if the quarantine of these immigrants for the fifteen-day incubation period and their complete delousing upon arrival at the detention camp are fully complied with, all new cases of typhus will be limited to such primary immigrant cases as may occur in the observation camps.

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Blood was drawn from eight of the cases investigated by the bureau and inoculated into guinea pigs. As in two of the cases the blood was drawn after the crisis, no temperature was produced in the inoculated animals. In the other six cases, the guinea pigs developed, after an incubation period of from ten to twelve days, a temperature which persisted for from four to twelve days. Typhus virus so isolated is now in the fourth generation in guinea pigs. The production of fever in these animals after an incubation period of about ten days, in the absence of other symptoms and lesions, and the successful passage of the virus through several generations, may be considered as confirmation of the diagnosis of typhus.

Cases of Typhus Fever in California.

Case No.	Name	Place	County	Entered U. S. from Mexico	Date of onset	Primary or secondary	Contact	Termination
1	P. P.	Burlingame	San Francisco	Native	June 2	Secondary (not a railroad case)	Unknown	Recovery
2	R. C.	Harold	Los Angeles	June 21	July 1	Primary		Recovery
3	T. G.	Los Angeles	Los Angeles	June 22	July 8	Primary		Fatal
4	C. baby	Harold	Los Angeles	June 21	July 15	Secondary	To No. 2	Recovery
5	E. J. L.	Los Angeles	Los Angeles	Native	July 19	Secondary (not a railroad case)	Unknown	Recovery
6	L. V.	Harold	Los Angeles	June 21	July 21	Secondary	To No. 2	Recovery
7	P. S.	Harold	Los Angeles	May 30	Aug. 6	Secondary	To No. 6	Recovery
8	J. G.	Hanford	Kings	July 21	Aug. 8	Primary		Recovery
9	M. G.	Hanford	Kings	July 21	Aug. 8	Primary		Recovery
10	P. S.	Hanford	Kings	Aug. 25	Sept. 4	Primary		Recovery
11	A. C.	Rosamond	Kern	Sept. 1	Sept. 8	Primary		Recovery
12	F. C.	Rosamond	Kern	Sept. 1	Sept. 9	Primary		Recovery
13	H. C.	Rosamond	Kern	Sept. 1	Sept. 9	Primary		Recovery
14	J. O.	Hanford	Kings	Sept. 2	Sept. 10	Primary		Recovery
15	L. A.	Hanford	Kings	Sept. 2	Sept. 10	Primary		Recovery
16	F. G.	Corona	Riverside	Sept. 1	Sept. 11	Primary		Recovery
17	G. No. 1	Corona	Riverside	Sept. 1	Sept. 11	Primary		Recovery
18	G. No. 2	Corona	Riverside	Sept. 1	Sept. 11	Primary		Recovery
19	G. V.	Bakersfield	Kern	Aug. 28	Sept. 13	Primary		Recovery
20	F. F.	Bakersfield	Kern	Sept. 8	Sept. 14	Primary		Recovery
21	F. E.	Los Angeles	Los Angeles	Sept. 2	Sept. 14	Primary		Recovery
22	S. H.	Los Angeles	Los Angeles	Sept. 1	Sept. 16	Primary		Recovery
23	J. M.	Madera	Madera	Sept. 8	Sept. 22	Primary		Recovery
24	E. L.	Lang	Los Angeles	Sept. 18	Sept. 25	Primary		Recovery
25	Y. Q.	Mojave	Kern	Sept. 20	Oct. 5	Primary		Fatal
26	P. T.	Traver	Tulare	Sept. 1	Oct. 5	Secondary	Unknown	Fatal
27	R. V.	Java Junction	San Bernardino	Oct. 1	Oct. 18	Primary		Recovery
28	J. P.	Santa Monica	Los Angeles	Oct. 17	Nov. 1	Primary		

Out of a total of twenty-eight cases of typhus fever dating from June 2d to November 2d, twenty-two were primary cases, and six were secondary. In the primary cases, where infection presumably took place in Mexico, the interim which elapsed between the date of immigration and the onset of typhus fever varied from seven to eighteen days, averaging ten days. Thirteen of the twenty cases with known dates of emigration from Mexico show an interim of from seven to twelve days; the six remaining cases, a period of from thirteen to eighteen days. Cases Nos. 1, 3, 5, 6, 7, and 26 were secondary in California. All of the others, excepting Nos. 23 and 25, concerning which data is not available, were of secondary origin in Mexico but primary in California. Cases Nos. 3, 6 and 7 were confined to one locality and were secondary to case No. 2. Case No. 26 was a secondary case of unknown contact. Cases Nos. 1 and 5 were neither immigrants nor railroad laborers and were secondary cases of unknown contact. There were three deaths, giving a mortality rate of 10 per cent.

Division of Biological Examinations.

Summary of Examinations Made in the California State Hygienic Laboratory During the Month of October, 1916.

Condition suspected	Positive	Negative	Inconclusive	Total
Main laboratory at Berkeley:				
Anthrax		8		8
Diphtheria (diagnosis)	18	43	16	77
Diphtheria (release)	23	22	9	54
Diphtheria (school investigations)*	43	165	14	222
Gonococcus infection	23	51		74
Malaria		6		6
Rabies	2	13		15
Syphilis (Wassermann test)	23	195	6	224
Tuberculosis (sputum examinations)	7	16	1	24
Typhoid (Widal test)	14	10	5	29
Typhoid (excreta)	1	13		14
Miscellaneous	1	2		3
				750
Northern branch at Sacramento:				
Diphtheria (diagnosis)	4	13		17
Diphtheria (release)	3	12		15
Malaria	4	8		12
Tuberculosis (sputum examinations)	7	15		22
Typhoid (Widal test)	3	19	2	24
				90
San Joaquin Valley branch at Fresno:				
Diphtheria (diagnosis)	3	4		7
Diphtheria (release)	13	16		29
Malaria		2	1	3
Tuberculosis (sputum examinations)	4	10		14
Typhoid (Widal test)		4	2	6
				59
Southern branch at Los Angeles:				
Diphtheria (diagnosis)	14	30	1	45
Diphtheria (release)	1	5		6
Malaria		1		1
Syphilis (Wassermann test)		1		1
Tuberculosis (sputum examinations)	5	15		20
Typhoid (Widal test)	5	21	5	31
				104
Total number of examinations				1,003

*Cultures taken from school children at Monterey.

Division of Preventive Therapeutics.

Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory During the Month of October, 1916.

	Treatment commenced	Treatment completed
Main laboratory at Berkeley	1	3
Northern branch at Sacramento	0	0
San Joaquin Valley branch at Fresno	0	0
Southern branch at Los Angeles	0	0
Laboratory of Sacramento Board of Health, by deputized bacteriologist	0	0
Laboratory of San Francisco Board of Health, by deputized bacteriologist	1	2
Laboratory of Los Angeles Board of Health, by deputized bacteriologist	0	0
Laboratory of San Diego City Board of Health, by deputized bacteriologist	0	0
Laboratory of Letterman General Hospital, Presidio, by deputized bacteriologist	2	0
Laboratory of United States Naval Hospital, Mare Island, by deputized bacteriologist	0	0
	4	5

Distribution of Laboratory Products.

Vaccine for the Prevention of Typhoid Fever Issued by the State Hygienic Laboratory During the Month of October, 1916.

Number of physicians to whom vaccine was sent	7
Number of complete treatments sent	153

Ophthalmia Neonatorum Prophylactic Outfits Distributed During the Month of October, 1916.

Number of outfits, containing two ampoules each, issued 532

Public Health Instruction.

Participation in Instruction in Public Health During October, 1916.

Main laboratory at Berkeley:

Bacteriological instruction outfits sent out	1
Bacteriological instruction outfits in use	23

Division of Epidemiological Investigations.

Epidemiological Investigations and Other Special Investigations During October, 1916.

Main laboratory at Berkeley:
- Special investigations by the director 3
  - An investigation of typhus fever in southern California.
  - An investigation of hookworm at Grass Valley.
  - An investigation of diphtheria at Collinsville.
- Special investigations by the assistant drector 2
  - An investigation of a case of poliomyelitis at Ione.
  - An investigation of a suspected case of poliomyelitis at San Mateo.
- Special investigations by the assistant epidemiologists 5
  - An investigation of reported cases of poliomyelitis at Gustine.
  - An investigation of mosquito problem at Riverside.
  - An investigation of smallpox at the Alameda County Infirmary.
  - An investigation of typhus fever in southern California.
  - An investigation of hookworm at Grass Valley.

REPORT OF THE BUREAU OF VITAL STATISTICS.

GEORGE D. LESLIE, Director.

Synopsis of Statistics on Tuberculosis in California: 1915 and 1914.

Tuberculosis.—The "great white plague" caused 5,551 deaths in 1915 and 5,320 in 1914, the per cent being 14.2 each year against the average of 14.6 for 1906 to 1915. The average per cent of total deaths from tuberculosis in the ten years last past was no less than 18.8 for southern California against only 12.6 for northern and central California together.

Among cities, the annual average per cent of tuberculosis deaths in the past five years was highest for San Bernardino, Bakersfield, Riverside, Los Angeles, Pasadena, Grass Valley, San Diego, and Stockton, all except Grass Valley, with many miners, and Stockton, with a state hospital, being in or near southern California. The per cent was relatively low for Palo Alto, Pomona, Santa Monica, Long Beach, Berkeley, Alhambra, Richmond, Santa Cruz, Petaluma, Santa Rosa, Vallejo, Alameda, Modesto, Napa, Salinas, and Oakland, all these cities except Pomona, Santa Monica, Long Beach, and Alhambra being north of Tehachapi.

Classification of deaths from tuberculosis by length of residence shows that north of Tehachapi many native Californians and old-time residents succumb to this disease. The annual average per cent of native Californians among tuberculosis victims in 1906 to 1915 was 38.1 for northern and central California together against only 15.4 for southern California, being 28.7 for the entire state. Similarly, the average per cent who had lived here at least ten years was 29.9 for the territory north of Tehachapi as compared with only 20.5 for that to the south, being 26.0 for the state as a whole.

South of Tehachapi, on the other hand, deaths from tuberculosis occur largely among newly arrived consumptives. The annual average per cent of tuberculosis victims who had lived in the state less than ten years was as great as 55.5 for southern California against merely 18.4 for the territory north of Tehachapi and 33.8 for the whole state. Moreover, the length of residence in California was less than a year for an average of 17.0 per cent of the tuberculosis victims south of Tehachapi, the corresponding per cent for the entire state being only 9.2. In fact, of all who died of tuberculosis in southern California, an average of 2.0 per cent had been in the state less than a month, 6.4 per cent less than three months, and altogether 11.2 per cent less than half a year.

Among tuberculosis victims in cities, the average per cents for residents of less than ten years' standing in 1911 to 1915 were as follows: Pasadena, 64.4; San Diego, 58.9; Los Angeles, 55.7; Riverside, 55.0; and San Bernardino, 52.4. Moreover, the average per cents for residents of less than a single year's standing were thus: San Diego, 20.2; Pasadena, 18.1; San Bernardino, 15.3; Riverside, 15.2; and Los Angeles, 13.3.

Data for 1915 and 1914 on length of residence for all causes of death show that in southern California, where between one-fifth and one-sixth of all deaths are due to tuberculosis, the proportion for this disease is fully one-fourth among all decedents who had lived in the state less than a year and over one-fifth among those who had been here only one to nine years.

Figures for 1911 to 1915 indicate that the months of greatest mortality from tuberculosis for California as a whole are February, March, April and May, while deaths from this disease are relatively least numerous in August, September, October and November.

In short, the death rate of California is evidently swollen considerably by deaths occurring here from disease contracted elsewhere, for where tuberculosis is most prevalent a large proportion of the victims are residents of very short standing. Moreover, infection from these newly arrived consumptives accounts for some of the deaths among native Californians and old-time residents.

Births, Deaths and Marriages for September.*

State Totals and Annual Rates. The following table shows for California as a whole, the birth, death and marriage totals for the current and preceding months in comparison with those for the corresponding months of last year, as well as the annual rates per 1,000 population represented by the totals for the current and preceding months. The rates are based on an estimated midyear population of 2,946,347 for California in 1916, the estimate having been made by the Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rates per 1,000 Population, for Current and Preceding Months, for California: September.

Month	Monthly total		Annual rate per 1,000 population 1916
	1916	1915	
September—			
Births	4,159	4,296	17.2
Deaths	2,881	3,008	11.9
Marriages	2,886	2,887	12.0
August—			
Births	4,320	4,200	17.3
Deaths	2,954	2,997	11.8
Marriages	2,536	2,661	10.2

*Note.—The present report is for the month preceding but one. This order must be followed, because of the publication of the Bulletin during the early part of the month, before the tabulation of records for the preceding month is completed.

The birth and death totals for the month of September, 1916, are somewhat less than the corresponding totals for the same month, 1915, while the September marriage total this year differs by only one from that last year. The birth registration for September exceeded the death total by 1,278, or 44.4 per cent.

The state totals for the nine months, January to September, inclusive, in 1916 and 1915, respectively, were as follows:

	Births	Deaths	Marriages
Nine months, 1916	37,259	28,946	22,388
Nine months, 1915	35,415	28,280	22,945
	*1,844	*666	†557

*Gain. †Loss.

While the birth total for the first nine months of this year as compared with the same period of last year shows a gain of 1,844 and the death total a smaller gain of 666, there was even a loss of 557 in the marriage total for the period in 1916 as compared with 1915.

Length of Residence. The length of residence in California for the 2,881 decedents in September was as follows: Under 1 year, 89, or 3.1 per cent; 1 to 9 years, 539, or 18.7 per cent; 10 years and over, 1,251, or 43.4 per cent; life, 779, or 27.0 per cent; and unknown, 223, or 7.8 per cent.

County Marriage Totals. The counties showing the highest marriage totals for the month were as follows: Los Angeles, 646; San Francisco, 542; Alameda, 290; Orange, 155; Sacramento, 123; San Diego, 117; San Bernardino, 76; Fresno, 69; Santa Clara, 68; San Joaquin, 67; Riverside, 54; and Sonoma, 50. The aggregate for San Francisco and other bay counties was 941 against 801 for Los Angeles and Orange counties together.

County Birth and Death Totals. Exclusive of stillbirths in both cases, the birth and death totals for the month were as follows for the leading counties, arranged in decreasing order of birth registration:

County	Births	Deaths	County	Births	Deaths
Los Angeles	1,018	683	Orange	118	55
San Francisco	618	513	San Joaquin	104	90
Alameda	400	244	Kern	74	30
Fresno	164	65	Sonoma	71	44
Santa Clara	155	132	Tulare	69	39
San Diego	140	95	Contra Costa	68	28
Sacramento	139	93	Riverside	60	53
San Bernardino	123	92	Santa Barbara	58	46

City Birth and Death Totals. Birth and death totals, exclusive of stillbirths, are presented similarly for the principal California cities below:

City	Births	Deaths	City	Births	Deaths
Los Angeles	665	413	Pasadena	53	34
San Francisco	618	513	Long Beach	41	32
Oakland	290	161	Bakersfield	42	21
Sacramento	113	82	Santa Ana	35	14
San Diego	106	68	Alameda	32	16
San Jose	63	52	Berkeley	30	24
Fresno	61	29	San Bernardino	29	20
Stockton	55	52	Riverside	27	29

Geographic Divisions (*Infant Mortality*). The following table presents data for geographic divisions to show in comparison with total births and deaths the number of deaths under one year as some indication of conditions with reference to infant mortality in different portions of the state:

Total Births and Deaths, with Deaths Under One Year, for Geographic Divisions: September.

Geographic division	Total live births	Total deaths all ages	Deaths under one year
The state	4,159	2,881	294
Northern California—			
Coast counties	189	165	18
Interior counties	187	138	10
Central California—			
San Francisco	618	513	53
Alameda County	400	244	28
Other bay counties	134	87	10
Coast counties	258	211	23
Interior counties	783	463	63
Southern California—			
Los Angeles city	665	413	32
Rest of Los Angeles County	353	270	30
Other counties	572	377	27

Cause of Death. The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths, for Current and Preceding Month, for California: September.

Cause of death	Deaths, September	Proportion per 1,000	
		September	August
All causes	2,881	1,000.0	1,000.0
Typhoid fever	28	9.7	5.4
Malarial fever	10	3.5	0.7
Smallpox	2	0.7	0.3
Measles	1	0.3	0.7
Scarlet fever	1	0.3	0.3
Whooping-cough	15	5.2	8.1
Diphtheria and croup	19	6.6	7.1
Influenza	6	2.1	1.0
Other epidemic diseases	14	4.9	4.1
Tuberculosis of lungs	300	104.1	108.0
Tuberculosis of other organs	47	16.3	16.2
Cancer	221	76.7	85.7
Other general diseases	115	39.9	54.8
Meningitis	16	5.6	5.8
Other diseases of nervous system	218	75.7	66.4
Diseases of circulatory system	601	208.6	187.2
Pneumonia and broncho-pneumonia	139	48.3	46.4
Other diseases of respiratory system	42	14.6	13.2
Diarrhea and enteritis, under 2 years	87	30.2	27.4
Diarrhea and enteritis, 2 years and over	27	9.4	16.9
Other diseases of digestive system	162	56.2	55.5
Bright's disease and nephritis	189	65.6	81.3
Childbirth	28	9.7	7.8
Diseases of early infancy	115	39.9	36.9
Suicide	78	27.1	25.7
Other violence	283	98.2	94.1
All other causes	117	40.6	43.0

In September there were 601 deaths, or 20.9 per cent of all, from diseases of the circulatory system, and 347, or 12.0 per cent, from the various forms of tuberculosis, heart disease thus leading tuberculosis greatly.

Other notable causes of death for the month were: Violence, 361; diseases of the digestive system, 276; cancer, 221; Bright's disease and nephritis, 189; diseases of the respiratory system (pneumonia), 181; and epidemic diseases, 96.

The deaths from epidemic diseases were as follows: Typhoid fever, 28; diphtheria, 19; whooping-cough, 15; malarial fever, 10; and all other epidemic diseases, 24.

The deaths from the three leading epidemic diseases reported for the month were distributed by counties as follows:

Typhoid fever		Diphtheria		Whooping-cough	
Contra Costa	2	**Alameda**	2	**Del Norte**	1
El Dorado	1	**Amador**	1	**Imperial**	1
Fresno	1	**Los Angeles**	2	**Los Angeles**	3
Imperial	1	**Monterey**	2	**Orange**	3
Kern	1	**Sacramento**	1	**Riverside**	2
Kings	1	**San Bernardino**	1	**San Bernardino**	2
Los Angeles	4	**San Diego**	2	**San Diego**	1
Plumas	1	**San Francisco**	6	**San Joaquin**	1
Sacramento	1	**Santa Clara**	2	**Siskiyou**	1
San Bernardino	1				
San Francisco	5				
San Joaquin	1				
San Luis Obispo	1				
San Mateo	1				
Santa Cruz	1				
Shasta	2				
Sonoma	1				
Tulare	1				
Yolo	1				
Total	28	**Total**	19	**Total**	15

Sex, Race and Nativity. The proportion of the sexes among the 2,881 decedents in September was: Male, 1,751, or 60.8 per cent; and female, 1,130, or 39.2 per cent.

The race distribution of decedents was: White, 2,698, or 93.6 per cent of all; Japanese, 62; Chinese, 59; Negro, 41; and Indian, 21.

The 2,698 white decedents were classified by nativity as follows: California, 709, or 26.3 per cent; other states 1,042, or 38.6 per cent; foreign countries, 865, or 32.1 per cent; and unknown, 82, or 3.0 per cent.

Age Periods. The 2,881 deaths reported for the month were distributed by age periods as follows:

Under 1 year, 294, or 10.2 per cent; 1 to 4 years, 116, or 4.0 per cent; 5 to 9 years, 39, or 1.4 per cent; 10 to 19 years, 96, or 3.3 per cent; 20 to 29 years, 221, or 7.7 per cent; 30 to 39 years, 316, or 11.0 per cent; 40 to 49 years, 329, or 11.4 per cent; 50 to 59 years, 409, or 14.2 per cent; 60 to 69 years, 406, or 14.1 per cent; and 70 years and over, 655, or 22.7 per cent.

The 294 deaths under 1 year, in comparison with the 4,159 live births reported for the month, represent an infant mortality ratio of 71 per 1,000 births.

REPORT OF THE BUREAU OF TUBERCULOSIS FOR OCTOBER, 1916.

E. L. M. TATE, Director.

On the first of the month, a meeting was held with the Friday Morning Club under the auspices of the Los Angeles Society for the Study and Prevention of Tuberculosis. The subject, "A New Peril for Los Angeles," was discussed by Doctor Norman Bridge, president of the society, and Mr. Jonathan Mitchell, president of the Chamber of Commerce and the director of this bureau.

Los Angeles needs a preventorium for many of the school children who will later become inmates of the county hospital unless some place is provided for them now. The meeting was held for the express purpose of launching a plan for a preventorium.

Much time has been spent with various people interested in the tuberculosis movement in Los Angeles, mapping out the work of the University of Southern California through its department of sociology. With the cooperation of the bureau, they are about to begin the first intensive survey of conditions that has been made in the state. This will be in the Anne Street school district. They are particularly fortunate in having designated this district on account of the mine of material there, and second, they will have the cooperation of the principal of the school. The society plans to use the roof of the building for an open air school for patients in the clinic, to be used in connection with the school. This, to my knowledge, is the only clinic in the state that is held in a school, and it has done an enormous amount of good; so much in fact that a night clinic for the parents will soon be opened.

Pasadena has been visited with reference to establishing an open air school there, funds to be supplied by the Pasadena Tuberculosis Association from the receipts of the Red Cross seal sale. A day was spent making a survey of the various schools, trying to find a location. It seems difficult to imagine that there would be any objection to the location of an open air school, since it only means segregating the predisposed children, for providing special care instead of scattering them through many schools. Occasionally we find a school superintendent who is extremely anxious to have an open air school placed in the school yard, but ordinarily they object and want the school, not only some distance from the car but want it isolated.

The Southwestern Conference at Albuquerque was well worth while. The Kent bill came up for considerable discussion. Naturally some of the states in the southwest are not as anxious for the passage of the Kent bill as we are in California for the reason that few of them have hospitals that might be eligible for the subsidy.

The plan for the joint county hospital for Ventura, San Luis Obispo and Santa Barbara has taken an enormous amount of campaigning in the three counties. The splendid cooperation of the Santa Barbara supervisors has paved the way, and we hope, in another month, to see the matter definitely settled, so that this hospital may be established where the tuberculosis patients from the three counties may receive care and treatment.

A meeting was held also in the Civic Center, Santa Barbara.

Some of the private institutions have been inspected this month. Mrs. Marshall's Sanatorium outside of San Bernardino, where ambulatory patients are taken for the small sum of $20.00 per month, was visited. This does not include medical treatment but the patients have tent houses, good food and some nursing care. Just what California would do with its inadequate number of beds without these semi-philanthropic institutions, I do not know. The struggle these people make to maintain them is pathetic. Another private institution was visited in the mountains of San Luis Obispo County.

The plans are nearly complete for the new building of the Los Angeles County Tuberculosis Hospital and two rural nurses have been secured from the supervisors to work in the rural districts, caring for patients in their homes until the new buildings are finished.

Conferences have been held with some of the newspapers regarding patent medicine advertisements, and we hope in another year that the legislature will make it impossible for this fake advertising to continue. There are too many patients paying $15.00 per bottle for creosote and olive oil who ought to be buying milk and eggs and putting up portable houses where they can have fresh air.

The demand for visiting nurses continues to come in from most of the counties. The California Association for the Study and Prevention of Tuberculosis nurse has just inspected twenty-eight of the schools in Monterey County and expects to finish there before Christmas.

The collection of old paper is making a great deal of work possible just now, and that coupled with the sale of Red Cross seals will give each community a small fund with which to start their work.

Hospitals Inspected.

Los Angeles (2).
San Luis Obispo.
Fresno.
Riverside.
Mrs. Marshall's.
San Bernardino (3).
Janes.

REPORT OF THE BUREAU OF SANITARY ENGINEERING FOR OCTOBER, 1916.

C. G. GILLESPIE, C.E., Director.

The principal work of the month was the preparation of very comprehensive regulations to govern the preparation and submission of plans and applications for sewage disposal and water supply to the State Board of Health as required by law.

A noteworthy report filed by the bureau this month relates to the sewage disposal for the city of Hanford. That city is compelled by threatened damage suits to make a radical change in its sewage disposal. The only apparent outlet for disposal of the sewage appears to be into the irrigation system of the vicinity. Extremely high standards are therefore required of the effluent. It must be not only stable but free of excessive contamination and practically as clear as the irrigation water itself. Unusual consideration was given the applicability of the new activated sludge method, and based on considerations of efficiency, economy in first cost and a very slight increase in operating cost of this method over any other method which might be considered, decision was made in favor of the activated sludge method. Particular study was devoted to utilizing successfully the existing Imhoff tank installation in the new design. At the present time there is no installation of this type of treatment in California. The principle of the treatment involves the blowing of atmospheric air through the sludge deposited in hopper bottoms, thereby "activating" the sludge. The air agitation blowing the activated sludge particles through the liquid cause the chemical stabilization of all the soluble organic matter in the sewage and reduces the bacterial and colloidal content of the original liquid. The bacteria and colloids being agglutinated by the activated sludge, particles are quickly settled out of the sewage into a small sedimentary settling basin.

SEWAGE DISPOSAL.

Applications for Permits Filed.

Newman (*Newman Reduction Works*): To discharge reduction plant waste into the San Joaquin River about one mile above Mills Ferry.

Sonora: To continue to discharge septic tank effluent into Woods Creek.

Atascadero (*Colony Holding Corporation*): To dispose of sewage of the Civic Center buildings into underground tile, following clarification in a septic tank.

Los Angeles: To discharge sewage into the Pacific Ocean at a point 875 feet north of the present outfall through a proposed outfall.

Permits Granted.

Hanford: Temporary permit to continue to dispose of sewage as at present pending installation of activated sludge plant or other type of works yielding equivalent results.

Newman (Newman Reduction Works): Permit to dispose of cooked waste from reduction plant into San Joaquin River about one mile above Mills Ferry.

Los Angeles: Temporary permit to continue to dispose of sewage into the Pacific Ocean at Hyperion, at a point 875 feet north of the present outfall.

Chino: Permit granted to dispose of sewage on proposed city sewer farm.

Plans Filed.

Ocean Beach, San Diego: Preliminary plans for sewage disposal.

Santa Barbara: Preliminary plans for sewage disposal.

Atascadero (Colony Holding Corporation): Plans for sewer system, septic tank and tile subsurface irrigation system; returned with criticism.

Investigations, Inspections and Reports.

Oakland: Inspected October 9th and 10th. This was a preliminary inspection to determine the magnitude of sewage nuisance near Key Route Pier. Singularly, residents in this vicinity will not complain of the apparently intolerable offense. In the absence of complaint alleging public nuisance, the bureau will discontinue further study temporarily.

Los Angeles (Los Angeles County Tuberculosis Hospital): Inspected October 23d. On request of the Bureau of Tuberculosis, which is considering the state aid of this hospital, the drainage of the grounds was investigated.

Guasti (Winery Waste of Italian Vineyard Company): Inspected October 23d. The winery waste is disposed of in a large basin in open country three-fourths of a mile from the nearest white resident. Complaints alleging nuisance appeared to be ill founded.

Corcoran: Inspected October 26th. Sanitary survey indicates that conditions are dangerously ripe for an epidemic. There is no sewer system. Cesspools in the business section are overloaded. Garbage is dumped in streets and alleys. Fly breeding corrals, etc., are plentiful. Adoption of good working ordinances, clean up of garbage, privies, corrals and improved sewering of business district, at least using septic tanks and underground seepage disposal through long open-bottom culverts, were recommended.

Reedley: Inspected October 26th. The new sprinkling filter is completed and operating. Inspection was made preliminary to test of the plant in order to get a pending suit against the previous sewage disposal dismissed. Apparently the works are well designed and a model.

Newman: Inspected October 27th. Sewage is piped to a two-unit septic tank about two miles east. The effluent empties into a ten-acre pond from which it disappears largely by evaporation. During flood stages the pond and sometimes the tanks are flooded by the San Joaquin River. A sludge pump, centrifugal type, gasoline engine driven, is part of the equipment.

Newman (*Newman Reduction Works*): Inspected October 27th. The proposed sewage disposal contemplates delivery of about 4,000 gallons of rich meat juice waste into the San Joaquin River one-half mile above its junction with the Merced River. The waste is cooked under pressure for seven hours and is sterile.

Decoto School: Inspected October 31st, on request of the county surveyor of Alameda County. A septic tank, covered to confine odors, and disposal underground through a tile system was advised.

Alameda County Tuberculosis Hospital, near Livermore: Investigated October 31st. The sewage disposal of the proposed hospital was looked into. Clarification in an Imhoff tank with disposal by surface irrigation on alfalfa, corn, etc., was advised, the soil being very dense.

Ukiah: Inspected October 31st. Work on preparation of plans for improved sewage disposal has not yet been begun. Improvement is absolutely necessary, as the policy of the State Board of Health will not again permit the discharge of this sewage into the Russian River during another summer season. To save trouble the city has been advised to begin work at once, and suggestive sketches indicating what is needed have been presented to the officials.

WATER SUPPLIES.

Applications for Permit Filed.

Marin Water District: Filed application to supply water to its constituents, asking particularly for assistance in formulating watershed regulations.

Permits Granted—None.

Plans Filed—None.

Investigations, Inspections and Reports.

Irvington: Inspected October 10th. Water supply is derived from Mission Creek, a combined surface and spring-fed stream, and is diverted from the creek through an old settling basin, capacity about 200,000 gallons. The supply is used largely on the grounds of the Lachmann estate, only about 2 per cent of the 800,000-gallon flow going on to Irvington to supply the 50 or more consumers. There are but two ranchers on the watershed, notwithstanding which fact the water indicates sewage contamination and is subject to turbidity. No treatment appears feasible from financial considerations, and chief reliance must be placed on sanitary regulation of the watershed. Well supplies in Irvington offer an alternative source. The present supply is owned by the Lachmann estate.

Newman: Inspected October 27th. Supply is derived from a 600-foot well. Equipment consists of a vertical shaft deep well centrifugal pump, low lift, pumping into a concrete storage tank from which it is elevated by a duplex pump to an elevated tower, capacity 100,000 gallons, feeding directly into mains. Works are owned by Newman Water Works Company. There are no analyses.

Mendocino State Hospital for the Insane: Investigated October 31st. Made as basis for recommendations relative to means of improving the water supply. This water is derived from a creek in the mountains on the watershed of which camps, fishermen and the traveling public have contributed pollution. Chlorination of the supply has been recommended, together with certain regulations on the watershed to lessen the amount of pollution.

Santa Rosa: Inspected November 1st. A conference was held with the president of the water company relative to recommendations made in a recent report by this bureau for improving the quality of the supply. Equipment for treating the water with chlorine will be installed.

LABORATORY.

During the month the proprietor of a local ice plant called in a member of the laboratory staff in connection with a condemnation of his output by the local board of health which based its action on the finding of high ammonia in the ice, indicating a polluted water used in the ice manufacture. The inspection revealed a stable near by and an ammonia test applied to the atmosphere in the plant showed that the effect of this stable on the air which was later used in agitating the water during freezing was sufficient to account for the apparent pollution of the water supply. The finding is reported on account of the applicability of laboratory and field methods combined in the hands of an expert in tracing and determining the significance of indicated contamination.

A hairdressing establishment brought to the bureau a problem which has no doubt troubled many other water consumers. It appears that from the hot water tap of the establishment a dirty brown slime frequently affected the water to such an extent that considerable business was lost. The bureau analysis indicated that the slime was not organic, but mineral, and was merely a brown soft-boiler scale which found its way to the tap through the lack of attention in blowing out the boilers occasionally. Households similarly troubled with slime appearing only in the hot water faucets will no doubt find that the simple precaution of blowing out and emptying boilers and hot water pipe lines occasionally will remove this criticism of the supply.

Summary of Work.

Bacteriological examinations of water—366, of which 223, or 61.0 per cent, showed contamination.

Bacteriological examinations of sewage—19.

Sanitary chemical examinations of water—28.

Chemical examinations of water—368 (partial).

Chemical examinations of sewage—2 (partial).

Examinations of sludge—10.

REPORT OF THE BUREAU OF FOODS AND DRUGS FOR OCTOBER, 1916.

E. J. Lea, M.S., Director.

The ninth decennial edition of the United States Pharmacopœia became effective on September 1, 1916.

Investigation has shown that the majority of druggists had on hand September 1, 1916, considerable stock of preparations made in accordance with the eighth revision of the United States Pharmacopœia. On this account, the California State Board of Health will not take action under the Pure Drugs Act on preparations made in accordance with the eighth revision of the United States Pharmacopœia until after January 1, 1917. Prior to January 1, 1917, preparations which conform to the eighth revision of the United States Pharmacopœia should be plainly labeled to indicate this fact if their therapeutic effect differs materially from the preparations in the ninth revision of the United States Pharmacopœia.

Tomatoes.

One of the most important problems confronting this department during the month of October was in connection with the tomato industry.

The tomato crop this year is comparatively light, and owing to the early rains, many of the tomatoes in the fields were moldy and decomposed, and canners had great difficulty in getting reasonably good deliveries. Investigation by this department showed that in some cases tomato growers made deliveries, 65 per cent of which were moldy, decomposed and entirely unfit for canning purposes. If the canner rejected these bad tomatoes, the grower would take them to some other canner, who accepted them, with the result that the canner who was particular about the quality of his product found himself unable to fill his contracts.

The problem was so serious that a meeting of the canners was called at which representatives of the United States Food Inspection Laboratory and the Bureau of Foods and Drugs were present.

Mr. B. R. Hart, Chief, Western Division, Bureau of Chemistry, United States Department of Agriculture, discussed the danger which might result from using moldy and decomposed tomatoes, and made many valuable suggestions concerning the canning methods necessary to insure a first-class product.

The Director of the State Bureau of Foods and Drugs discussed the application of the California Pure Food Act to the problem, and pointed out the responsibility of both grower and canner.

Arrangements were finally made for the Bureau of Foods and Drugs to prepare a sufficient number of circular letters on this subject for the canners to distribute to all of their growers. Arrangements were also made for inspectors of this department to visit the fields and canneries in the various tomato districts of this state, and take such action as seemed necessary in order to prevent the delivery of bad tomatoes. The canners provided automobiles, and men who were familiar with the territory to be covered, in order to expedite the work.

The first day the inspectors were out they found a great many wagon and car loads of tomatoes which contained from 25 to 65 per cent of bad tomatoes. None of these loads, containing excessive quantities of bad tomatoes, were permitted to be delivered to the canneries. In a few instances it was necessary to quarantine carloads of tomatoes. In these cases the owners were immediately notified and permitted to sort out the bad tomatoes, after which the remainder was delivered to the canneries.

The second day's work found only a few loads of bad tomatoes, and on the third day the canners reported that practically all of their deliveries were satisfactory.

Two hundred and forty-three samples of foods and drugs were received at the laboratory during October.

Official Samples.

Foods.

Beverages	3	Liquors	5
Bread	9	Meats	1
Cakes	2	Milk	6
Coffee	1	Noodles	1
Condiments	2	Syrup	1
Confectionery	1	Tomatoes	3
Crackers	1	Tomato catsup	6
Eggs, fresh	35	Tomato conserva	1
Extracts	4	Tomato Nectar	1
Fish, canned	9	Tomato puree	7
Flour	1	Tomatoes with puree	11
Fruit, canned	1	Vinegar	2
Gell-Well	1		
Ice cream	1		116

Eggs. Thirty-five samples of eggs, sold or labeled as "fresh eggs," were collected and examined this month, with the result that in nearly every instance the eggs were stale, and some of them were decomposed and rotten. Many of these eggs were cold storage eggs which had been sold as fresh, and some were seconds and "held" eggs. In all cases these eggs were sold at the regular market price for fresh eggs.

Fish, canned. Samples of sardines, canned mackerel, etc., were examined. Seven samples out of the nine collected were found to be decomposed and unfit for human consumption. Some of the cans were badly swelled.

Tomatoes. Twenty-nine samples of tomato products, such as catsup, conserva, puree, etc., were examined. These samples were collected from canneries, and many of them were made from decomposed tomatoes and were not fit for human consumption.

The majority of the canneries, however, are putting out an excellent product this season.

Drugs.

Aceto salicylic acid	3
Aspirin tablets	1
Camphorated oil	2
Console New Life Water	1
Jamaica ginger	2
Liniment	1
Tincture of iodine	2
Zinn's Mystery Oil	1
	13

Among the drug samples analyzed this month was a water labeled:

CALIFORNIA'S LAKURE
Greatest Wonder
Used as an Internal and External Remedy
for
Catarrh, Diphtheria, Tonsilitis, Tumors, Polypus,
All Skin Diseases, Burns and Cuts, Intestinal
Catarrh and Catarrh of the Stomach

From the Laboratories of
The Lake County Mineral Salts and Water Co.
Petaluma California
Price $1.00

This water contained 4.67 grams total solids per 100 cubic centimeters. The mineral ingredients consisted essentially of ferric sulfate and potash alum. This water has been advertised to a considerable extent in the newspapers and has been sold as a cure for the various ailments listed above. It is labeled and sold so as to deceive the public into the belief that it has unusual merits for the ailments mentioned, whereas the water has no such therapeutic effects.

The extravagant claims made for this product constitute a violation of the California Pure Drugs Act. This matter was, therefore, formally brought before the State Board of Health for action.

Console New Life Water.

Official samples of Console New Life Water were collected by inspectors of this department from John Console, El Centro, Imperial County, California.

This water is sold as a cure for many diseases, including kidney trouble, stomach trouble, catarrh, eye affections, and other diseases. The testimonials on the circular accompanying this water were designed to lead the public to believe that this water is a wonderful cure for all the diseases mentioned.

This water contains in 100 cubic centimeters:

Total solids	.894 grams
Volatile and water of crystallization	.162 grams
Solids soluble in 60 per cent alcohol	.084 grams
Solids insoluble in 60 per cent alcohol	.590 grams
Sodium sulfate	Positive (slight)
Magnesium sulfate	Positive (heavy)
Calcium sulfate	A trace
Iron and aluminum sulfates	Positive (considerable)

This water is advertised and sold largely by the self-styled "Natural Professor Console," who conducts street entertainments in various towns in the southern part of the state. The verbal representations of the virtues of this water are far more extravagant than the statements appearing on the label.

This matter was formally brought before the State Board of Health in the usual manner, after which the case was referred to the District Attorney of Imperial County for prosecution under the California Pure Drugs Act.

Unofficial Samples.

Foods.

Beverages	1
Cheese	1
Extracts	3
Fish, canned	2
Liquors	1
Macaroni	1
Milk, canned	4
Milk, fresh	1
Oil, olive	1
Rice bran	1
Tomato puree	1
	17

Drugs.

Acid acetylo salicylic	2
Anti Grippe Tablets	1
Carter's Catarrh Cure	1
Diamond Dinne's Pills	1
Lane's Liver Regulator	1
	6

State Institution Samples.

Foods.

Baking powder	4
Beans	5
Cocoa	2
Coffee	1
Condiments	5
Corn	1
Cereals	6
Extracts	2
Fish, canned	2
Flour	7
Fruit	2
Gelatine	1
Molasses	2
Oil, olive	2
Oil, salad	2
Oysters	1
Peas	3
Spices	11
Sugar	3
Syrup	3
Tea	2
Tomato catsup	1
Wheat, red	1
	71

Miscellaneous.

Cleaning compounds	3
Fork	1
Hair, curled	1
Knife	1
Leather	2
Soap, chipped	1
Soap, toilet	2
Tablespoon	1
Teaspoon	1
Water	2
	15

Baking Powder. One of the four samples of baking powder contained less than 10 per cent of carbon dioxide. The others ranged from 11 per cent to 14 per cent.

Beans. Five samples of canned beans, purchased as stringless beans, were examined and nearly all of them were found to contain excessive strings, which were exceedingly tough.

Fish, canned. One sample of sardines was considerably decomposed and unfit for human consumption. A new sample was taken from the same lot and found to be in good condition.

Flour. The flour samples examined this month in nearly all cases show improvement over former deliveries; however, some of the deliveries were below specifications.

Oysters. One sample of oysters consisted of small pieces of oysters and was considerably decomposed and unfit for human consumption. New samples were drawn from the same lot which proved to be in good condition.

Spices. Among the spices examined cinnamon and allspice samples were found which were exhausted and worthless, having little or no flavoring value.

Leather. Two samples of leather were examined. One conformed to specifications and one contained glucose used as a "make weight."

Soap. Two samples of toilet soap were found to contain excessive water and, therefore, rejected.

Water. Two samples of water were analyzed to determine their fitness for irrigation purposes.

Cold Storage Samples.

Eggs	1
Figs	2
Fish, shell	1
Walnut meats	1
	5

Articles of Food Condemned Upon Physical and Chemical Examination as Unfit for Food, October, 1916.

Material	Amount	Condition	Locality	Disposition
Catsup	52 lbs.	Decomposed	Los Angeles	Destroyed
Catsup	15 lbs.	Decomposed	Pasadena	Destroyed
Condiments	6 cans 8 lbs.	Decomposed	Los Angeles	Destroyed
Condiments	46 qts.	Decomposed	Long Beach	Destroyed
Condiments	31 bottles	Decomposed	Wheatland	Destroyed
Fish, canned	29 cans	Decomposed	Los Angeles	Destroyed
Fish, canned	8 cans	Decomposed	Long Beach	Destroyed
Jelly	4 lbs.	Decomposed	Los Angeles	Destroyed
Meat	15 lbs.	Decomposed	Marysville	Denatured
Meat	20 lbs.	Decomposed	Yuba City	Denatured
Miscellaneous canned goods	7 cans	Decomposed	Los Angeles	Destroyed
Poultry	2 only	Decomposed	Berkeley	Denatured
Syrup	9 lbs.	Fermented	Los Angeles	Destroyed
Tomato pulp	135 bbls.	Decomposed	San Francisco	Destroyed
Walnut meats	221 lbs.	Rancid	San Francisco	Denatured

Convictions Under the Pure Food and Drugs Act During October.

Name of article	Offense	Accused dealer	Locality	Penalty
Catsup, tomato	Adulterated and mislabeled	Packard Mfg. Co.	Los Angeles	Fined $10.00
Chopped meat	Adulterated and mislabeled	A. A. Halverson	Santa Clara	Fined 20.00
Chopped meat	Adulterated	Holbrook's Market	Venice	Fined 10.00
Chopped meat	Adulterated	Holbrook's Market (Guar.)	Venice	Fined 10.00
Coffee	Adulterated and mislabeled	Atlas Cafe	Oakland	Fined 5.00
Eggs	Adulterated and mislabeled	Morris & Co.	Los Angeles	Fined 20.00
Frankfurters	Adulterated and mislabeled	A. A. Halverson	Santa Clara	Fined 20.00
Gin	Adulterated and mislabeled	John F. Harrington	Oakland	Fined 10.00
Olive oil	Adulterated and mislabeled	Maple Pharmacy	Los Angeles	Fined 5.00
Sausage, bologna	Adulterated and mislabeled	A. A. Halverson	Santa Clara	Fined 20.00
Sweet oil	Adulterated and mislabeled	G. G. Colpe	Ocean Park	Fined 25.00
Vanilla, essence of	Adulterated and mislabeled	Navlet Bros.	Oakland	Fined 10.00
Walnut meats	Adulterated and mislabeled	A. Castores	Oakland	Fined 5.00

Cases Referred to District Attorney, October 7, 1916.

Name of article	Offense	Accused dealer	Locality
Camphorated oil	Adulterated and mislabeled. Substitution of other material.	Carquinez Pharmacy	Crockett.
Coffee	Adulterated and mislabeled. Substitution of other material.	Dennis Crowley	Port Costa.
Coffee	Adulterated and mislabeled. Substitution of other material.	Venus Cafe	Crockett.
Coffee	Adulterated and mislabeled. Substitution of other material.	M. J. and N. J. Casovia	Oakland.
Condiments—			
Tomato catsup	Adulterated and mislabeled. Filthy, decomposed	Nippon Restaurant	Marysville.
Tomato paste	Adulterated and mislabeled. Filthy, decomposed	Stephen Peluffo	Los Angeles.
Tomato paste	Adulterated and mislabeled. Filthy, decomposed	J. A. Papeschi	Los Angeles.
Tomato sauce	Adulterated and mislabeled. Filthy, decomposed	E. Croce and B. Bianco	Los Angeles.
Tomato sauce	Adulterated and mislabeled. Filthy, decomposed	Garbini Bros.	Los Angeles.
Currants	Adulterated and mislabeled. Filthy	Royston's, Inc., No. 2	Los Angeles.
Eggs	Adulterated and mislabeled. Decomposed	M. Crittenden	Los Angeles.
Eggs	Adulterated and mislabeled. Decomposed	Drakos & Marinos	Los Angeles.
Eggs	Adulterated and mislabeled. Decomposed	Harry T. Harada	Los Angeles.
Eggs	Adulterated and mislabeled. Decomposed	F. Rothschild	Los Angeles.
Eggs	Adulterated and mislabeled. Decomposed	M. J. Firisich	Los Angeles.
Eggs	Adulterated and mislabeled. Decomposed	Hunter, Smith Produce Co. (Guar.).	Los Angeles.
Eggs	Adulterated and mislabeled. Decomposed	Wallace Produce Co. (Guar.)	Los Angeles.
Essence Jamica ginger	Adulterated and mislabeled. Substitution of other material.	J. L. Cramer	Watsonville.
Essence peppermint	Adulterated and mislabeled. Substitution of other material.	M. Harris	San Francisco.
Liquor—			
Gin	Adulterated and mislabeled. Substitution of other material.	Argo Bar	San Francisco.
Gin	Adulterated and mislabeled. Substitution of other material.	Henry Meyer	San Francisco.
Gin	Adulterated and mislabeled. Substitution of other material.	Palm Bar	Oakland.

Gin	Adulterated and mislabeled. Substitution of other material.	Sutter Cafe	Stockton.
Gin	Adulterated and mislabeled. Substitution of other material.	Mike Galvin	San Francisco.
Gin	Adulterated and mislabeled. Substitution of other material.	Venus Bar	Crockett.
Vermouth	Adulterated and mislabeled. Substitution of other material.	Sutter Cafe	Stockton.
Whisky	Adulterated and mislabeled. Substitution of other material.	J. F. Harrington	Oakland.
Macaroons	Adulterated and mislabeled. Contained flour	Chris E. Baer (Guar.)	Los Angeles.
Maple sugar cakes	Adulterated and mislabeled. Substitution of other material for maple sugar.	Orange Blossom Candy Co., Inc.	San Francisco.
Meat—			
Chopped	Adulterated. Contained sulfur dioxid	New Model Market, H. Reichhold, Prop.	Berkeley.
Pork sausage	Adulterated. Contained sulfur dioxid	Hurlbutt Market	Eureka.
Milk, condensed skim	Adulterated and mislabeled. Filthy, decomposed	Smith & Doyle	Los Angeles.
Orange jellies	Mislabeled. Contained coal tar color not declared	F. W. Woolworth Co.	Los Angeles.
Orange syrup	Mislabeled. Artificial color not declared	Harbor Creamery	Richmond.
Sandalwood oil	Adulterated and mislabeled. Substitution of other material.	Lindauer Bros. (Guar.)	San Francisco.
Spirits of camphor	Adulterated and mislabeled. Substitution of other material.	Central Pharmacy	Sausalito.
Tincture iodine	Adulterated and mislabeled. Below U. S. P. standard.	E. T. Evans	Loleta.
Tincture iodine	Adulterated and mislabeled. Below U. S. P. standard.	Wm. B. Alford	Ferndale.
Yow Yee oil	Mislabeled. False claims	Dr. Chow Juyan's Herb Sanitarium.	San Francisco.

The following notices of judgment were received from the United States Department of Agriculture, Washington, during the month:

	N. J. No.
Acacian balsam. *See* Balsam.	
Alchermes di Firenze:	
Mariana Bros.	4410
Balm of life, Dr. Wrightsman's:	
Senger, D. B., & Co.	4438
Balsam, acacian, Dr. Brown's:	
Kells Co.	4444
Barker's H. W., remedy for catarrh, coughs, colds and rheumatism:	
Barker, H. W., Medical Co.	4401
Beans—	
canned:	
Cooke, Shanawolf Co.	4448
pork and:	
Gibson Canning Co.	4449
Bitters, ferro-china:	
Basilea-Calandra Co.	4403
Blood, liver and kidney cure. *See* Cure.	
Blood remedy. *See* Remedy.	
treatment, Brown's:	
Brown Co., Dr.	4443
Brandy, Cognac:	
Parisek Co., E.	4434
Brown's acacian balsam:	
Kells Co.	4444
Brown's blood treatment:	
Brown Co., Dr.	4443
Bunsen's catarrh cure:	
Beggs, C. W., Sons & Co.	4418
Catarrh cure. *See* Cure.	
remedy. *See* Remedy.	
Celery-Vesce:	
Century Chemical Co.	4439
Classe's penetrating liniment:	
Diggs, W. P., & Co.	4424
Cognac. *See* Brandy.	
Compound, diaphoretic:	
Tucker, H. A.	4411
Conserve, tomato. *See* Tomato conserve.	
Cordial—	
Alchermes di Firenze:	
Mariani Bros.	4410
Liquore Garibaldi:	
Mariani Bros.	4410
Menta glaciale:	
Mariani Bros.	4410
Cough sirup:	
Favreau & Collette	4405
Rawleigh, W. T., Medical Co.	4419
Cure—	
catarrh:	
Beggs, C. W., Sons & Co.	4418
distemper:	
Binkley Medical Co.	4426
liver, blood, and kidney:	
Parker Co., W. J.	4440
De Witt's, Dr., liver, blood, and kidney cure:	
Parker Co., W. J.	4440
Diaphoretic compound. *See* Compound.	
Distemper cure. *See* Cure.	
Drops—	
fever:	
Tucker, H. A.	4411
lightning hot:	
Herb Medicine Co.	4414
Epilepsy remedy. *See* Remedy.	
Essence mentho-laxene:	
Blackburn Products Co.	4437
Extract—	
lemon:	
McCullough Drug Co.	4409
vanilla:	
Hudson Mfg. Co.	4421
Feed—	
oats:	
Fagg & Taylor; Fahey, J. T., & Co.; Gill & Fisher; Hammond Snyder & Co.; Muller, L., Co.; Norris Grain Co.	4404
Ferro-china trionfo:	
Basilea-Calandra Co.	4403
Fever drops. *See* Drops.	
Forrests' juniper tar:	
Whitehurst Co., J. H.	4417
Frazier's distemper cure:	
Binkley Medical Co.	4426
Gooch's Mexican sirup of wild cherry, tar, etc.:	
Cincinnati Drug & Chemical Co.	4425
Granatina:	
Mariani Bros.	4410
Guertin's, Dr., nerve sirup:	
Kalmus Chemical Co.	4406
Jasnogorskie wine. *See* Wine.	
Juniper tar:	
Whitehurst Co., J. H.	4417
Kidney, liver, and blood cure. *See* Cure.	
Lemon extract. *See* Extract.	
oil. *See* Oil.	
soda:	
Coyote Springs Mineral Water Co.	4428
Liniment—	
Classe's great penetrating:	
Diggs, W. P., & Co.	4424
Minard's:	
Minard's Liniment Mfg. Co.	4412
White Eagle Indian rattlesnake oil:	
———— ————	4442
Liquore Garibaldi:	
Mariani Bros.	4410
Liver, blood, and kidney cure. *See* Cure.	
Macaroni:	
Italian Importing Co.	4429
Mathieu's cough sirup:	
Favreau & Collette	4405
Menta glaciale:	
Mariani Bros.	4410
Mentho-laxene, essence:	
Blackburn Products Co.	4437
Minard's liniment:	
Minard's Liniment Mfg. Co.	4412
Mother's salve Mother's remedy:	
Mother's Remedies Co.	4427
Neal's olivfoam:	
To-Kalon Mfg. Co.	4415
Oats. *See* Feed.	
Oil, lemon:	
Magnus & Lauer	4450
Olivfoam, Neal's:	
To-Kalon Mfg. Co.	4415
Paracamph:	
Paracamph Mfg. Co.	4408
Paste, tomato. *See* Tomato paste.	
Peeke's, Prof., remedy for epilepsy.	
Peeke, Prof. W. H.	4447
Pork and beans. *See* Beans.	
P. P. P. Prickly ash, poke root, potassium, and stillingia:	
Lippman, F. V.	4413
Prickly ash, poke root, potassium, and stillingia:	
Lippman, F. V.	4413
Pulp, tomato. *See* Tomato pulp.	
Raney's blood remedy:	
Raney Medicine Co.	4436
Rawleigh's cough sirup:	
Rawleigh, W. T., Medical Co.	4419

N. J. No.

- Rawleigh's Ru-Mex-Ol:
  - Rawleigh, W. T., Medical Co.__ 4419
- Remedy—
  - blood:
    - Raney Medicine Co.____________ 4436
  - catarrh, coughs, colds, and rheumatism:
    - Barker, H. W., Medical Co.___ 4401
  - epilepsy or fits:
    - Peeke, Prof. W. H.____________ 4447
  - mother's:
    - Mother's Remedies Co.________ 4427
- Rheumatism remedy. *See* Remedy.
- Ru-Mex-Ol:
  - Rawleigh, W. T., Medical Co.__ 4419
- Salve, mother's:
  - Mother's Remedies Co.________ 4427
- Sauce, tomato. *See* Tomato sauce.
- Sirup—
  - cough:
    - Favreau & Collette____________ 4405
    - Rawleigh, W. T., Medical Co.__ 4419
  - granatina:
    - Mariani Bros. ______________ 4410
  - nerve:
    - Kalmus Chemical Co.__________ 4406
  - wild cherry, tar, etc.:
    - Cincinnati Drug & Chemical Co. 4425
  - wine of tar:
    - Warner Co., C. D.____________ 4422
- Soda, lemon:
  - Coyote Springs Mineral Water Co. ______________________ 4428
- Suppositories, opaline:
  - Vanderhoof & Co.____________ 4407
- Tar—
  - juniper:
    - Whitehurst Co., J. H.__________ 4417
- Tar sirup. *See* Sirup.

N. J. No.

- Tomato—
  - conserve:
    - Roncoroni, G. ______________ 4433
  - paste:
    - Roncoroni, G. ______________ 4433
    - Vesuvian Preserving Co.______ 4435
  - pulp:
    - ________ ________________ 4432
    - Austin Canning Co.___________ 4430
    - Blue Grass Canning Co.________ 4431
    - Houghland Bros. ____________ 4445
    - Leota Canning Co.____________ 4430
    - Vesuvian Preserving Co.______ 4435
  - sauce:
    - Vesuvian Preserving Co.______ 4435
- Tucker's, Dr. H. A., Diapho No. 59 Retic compound:
  - Tucker, H. A.________________ 4411
- Tucker's, Dr. H. A., Fever Drops:
  - Tucker, H. A.________________ 4411
- Vanilla extract. *See* Extract.
- V. I. G.:
  - Van Vleet-Mansfield Drug Co._ 4423
- Vinegar:
  - Leroux Cider & Vinegar Co.___ 4416
  - Old Kentucky Cider Vinegar Works ___________________ 4420
- Virogeno:
  - Sallusto, G., & Co.___________ 4446
- Warner's, Dr., white wine of tar sirup:
  - Warner Co., C. D.____________ 4422
- Water:
  - Harris Springs Water Co.______ 4441
- Wine, curative Jasnogorskie:
  - European Wine & Liquor Co.__ 4402
- Wine of tar sirup. *See* Sirup.
- Wrightsman's, Dr., balm of life:
  - Senger, D. B., & Co.__________ 4438

REPORT OF THE BUREAU OF REGISTRATION OF NURSES FOR OCTOBER, 1916.

ANNA C. JAMMÉ, R.N., Director.

During September and October inspection of training schools for nurses was made in Los Angeles, San Diego and Santa Barbara. Schools accredited during the past year have been found very generally to be maintaining the requirements of the board.

Interesting developments for increasing the value of the course to students are now in progress. These will add to the efficiency of nursing in the hospitals and later will improve nursing efficiency throughout the state.

The difficulty at present seems to be the securing of teachers. Hospitals are demanding nurse instructors and the demand has apparently gone ahead of the supply. In many instances nurses have had to be imported from other states. It certainly seems necessary that in California we should get to work to produce our own teachers of nurses and make provision for our graduate nurses who wish to take this special line of work by establishing a course in one of our universities to prepare nurse-teachers for our training schools.

It was found, in the cities visited, that the high schools show great interest in bringing before their students the coming requirements for entrance to schools of nursing. This is working out advantageously to the high school, as it gives the girl another and definite reason for remaining in school, other than preparing for the normal or the university.

Once this is clearly understood, there will undoubtedly be a lessening exodus from the high school at the end of the first or second year, when girls are not of sufficient age, and have not the physical or mental development for nursing. The director has had the opportunity to speak before the girls' student body in high schools in various parts of the state, also at teachers' institutes in Santa Barbara and Sacramento.

An interesting development in the use of community facilities valuable in the training of nurses is now in progress in San Diego. These community facilities are as follows:

1. Three hospitals (one a county hospital).
2. A municipal dispensary.
3. A municipal milk station.
4. A well-appointed and well-managed contagious hospital.
5. School nursing.
6. Tuberculosis nursing.
7. A high school.

The hospitals are working harmoniously together and an interchange of students for the various experiences in practical nursing is being arranged for.

The municipal dispensary is in charge of a qualified registered nurse. Students from the hospitals have the advantage of this service for two months.

The municipal milk station is in charge of a well-qualified registered nurse and the students from the hospitals have the advantage of this service for two months. They prepare various formulæ and assist in the distribution and in the follow-up work in the homes under the supervision of the nurse.

The contagious disease hospital is a new and well-appointed building. Registered nurses are now employed in the care of the patients. Preparation is being made for students from the training schools who anticipate doing public health work after graduation and will elect this service as a part of their preparation.

The two school nurses and the tuberculosis nurse aid in the instruction of students in these special branches of nursing, which will include a certain amount of field work in company with the instructor. This will give the student an insight into this class of work and the social conditions surrounding it.

Not the least in this list of community facilities influencing the education of nurses is the San Diego High School. Most active cooperation is given by the principal and the instructors in the school. The students from the training schools go here for their course in domestic science, the class of thirty-eight being divided into two sections and a special teacher, a graduate of Drexel Institute, Philadelphia, is appointed by the high school for the instruction of the nurses in this important branch. This is done without charge to the hospital. Classes in physics and chemistry, biology and physiology are also arranged for the students. In this beautiful new school, the pride of San Diego, is found ample equipment for all the purposes of these classes, which are held during the evening. The instructors aim to follow the requirements of, and relate their work to, the demands of the training school.

This working unification of facilities demonstrates what can be accomplished, undoubtedly in many centers, and not only in the larger but in the smaller communities, thereby centralizing the interest of the community in the education of nurses and broadening the interest of the student nurse in the work that she will later do in the community.

LIST OF COUNTY AND CITY HEALTH OFFICERS.

Alameda County—
Dr. J. Hal Cope -------- Pleasanton
Alameda -------- Dr. A. Hieronymus
Albany -------- Dr. J. F. Diddle
Berkeley -------- Dr. J. J. Benton
Emeryville -------- Dr. A. T. Drennan
Hayward -------- Dr. F. W. Browning
Livermore -------- Dr. J. K. Warner
Oakland -------- Dr. Kirby B. Smith
Piedmont -------- Dr. Benj. T. Mouser
Pleasanton -------- Dr. J. Hal Cope
San Leandro -------- Dr. Luther Michael
Alpine County—
Mr. Fred S. Dunlap -------- Markleeville
Amador County—
Dr. G. L. Lynch -------- Amador City
Jackson -------- H. E. Kay
Sutter Creek -------- W. A. Burres
Butte County—
Dr. L. L. Thompson -------- Gridley
Biggs -------- R. W. Simmons
Chico -------- W. H. Marshall
Gridley -------- Dr. L. Q. Thompson
Oroville -------- Dr. W. F. Gates
Calaveras County—
Dr. George F. Pache, Angels Camp
Angels Camp -------- Dr. E. W. Weirich
Colusa County—
Dr. G. W. Derosier -------- Colusa
Colusa -------- Dr. G. W. Derosier
Contra Costa County—
Dr. W. S. George -------- Antioch
Antioch -------- Dr. W. S. George
Concord -------- Dr. F. F. Neff
Hercules -------- F. P. McManus
Martinez -------- Dr. Edwin Merrithew
Pinole -------- Dr. M. L. Fernandez
Pittsburg -------- Dr. H. E. Peters
Richmond -------- Dr. Chas. R. Blake
Walnut Creek -------- Dr. C. R. Leech
Del Norte County—
Dr. E. M. Fine -------- Crescent City
Crescent City -------- Dr. E. M. Fine
El Dorado County—
Dr. L. M. Leisenring -------- Placerville
Placerville -------- P. J. Hall
Fresno County—
Dr. G. L. Long -------- Fresno
Clovis -------- Dr. M. S. McMurtry
Coalinga -------- Dr. C. W. Hutchison
Firebaugh -------- Dr. H. J. Greven
Fowler -------- Chas. Chapman
Fresno -------- Dr. A. H. Sweeney
Kingsburg -------- Dr. J. A. Gillespie
Reedley -------- Dr. Chas. H. Traber
Sanger -------- Dr. Thos. F. Madden
Selma -------- Dr. O. H. Steinwand
Glenn County—
Dr. F. M. Lawson -------- Willows
Orland -------- Dr. S. Iglick
Willows -------- Dr. W. H. Walker
Humboldt County—
Dr. Carl T. Wallace -------- Eureka
Arcata -------- Dr. G. W. McKinnon
Blue Lake -------- Dr. Chas. N. Mooney
Eureka -------- Dr. L. A. Wing
Ferndale -------- Dr. J. A. Lane
Fortuna -------- Dr. Orville Rockwell
Imperial County—
Dr. R. K. McGuffin -------- Imperial
Brawley -------- Dr. Eugene Le Baron
Calexico -------- Dr. W. L. Ellis
El Centro -------- Chas. H. Field
Holtville -------- J. C. Nale
Imperial -------- Dr. R. K. McGuffin
Inyo County—
Dr. I. J. Woodin -------- Independence
Bishop -------- ________
Kern County—
Dr. C. A. Morris -------- Bakersfield
Bakersfield -------- Dr. P. J. Cuneo
Delano -------- Dr. George H. Shrodes
Maricopa -------- Dr. H. N. Taylor
McKittrick -------- Dr. Robert C. Dear
Taft -------- Dr. M. W. Pascoe
Tehachapi -------- Dr. N. J. Brown, Jr.
Kings County—
Dr. C. L. Scott -------- Hanford
Corcoran -------- Dr. J. T. Peery
Hanford -------- Dr. B. Robbins
Lemoore -------- Dr. W. P. Byron
Lake County—
Dr. W. E. Upton -------- Kelseyville
Lakeport -------- P. H. Millberry
Lassen County—
Dr. W. E. Dozier -------- Susanville
Susanville -------- ________
Los Angeles County—
Dr. J. L. Pomeroy -------- Los Angeles
Alhambra -------- Dr. F. E. Corey
Arcadia -------- Dr. Chas. D. Gaylord
Avalon -------- Dr. J. J. Peckham
Azusa -------- Dr. John E. Hill
Beverly Hills -------- Dr. Lowell G. Frost
Burbank -------- Dr. E. H. Thompson
Claremont -------- Dr. F. W. Thomas
Compton -------- E. E. Elliott
Covina -------- Dr. J. D. Reed
Eagle Rock -------- Dr. C. H. Phinney
El Monte -------- Dr. S. L. Corpe
Glendale -------- Dr. R. E. Chase
Glendora -------- Dr. A. L. McCarty
Hermosa Beach -------- B. F. Brown
Huntington Park -------- Dr. W. Thompson
Inglewood -------- Dr. H. A. Putnam
Long Beach -------- Dr. R. L. Taylor
Lordsburg -------- Dr. J. E. Hubble
Los Angeles -------- Dr. L. M. Powers
Manhattan Beach -------- Llewellyn Price
Monrovia -------- Dr. Chas. D. Gaylord
Pasadena -------- Dr. Stanley P. Black
Pomona -------- Dr. N. J. Rice
Redondo Beach -------- Dr. D. R. Hancock
San Fernando -------- Dr. Benj. B. Ward
San Gabriel -------- Dr. Ruth Purcell
San Marino -------- Dr. W. LeMoyne Wills
Santa Monica -------- Dr. Chas. G. Shipman
Sawtelle -------- Dr. A. B. Hromadka
Sierra Madre -------- Dr. R. H. Mackerras
South Pasadena -------- Dr. C. F. Metcalf
Tropico -------- Dr. Wm. C. Mabry
Venice -------- Dr. W. M. Kendall
Vernon -------- Dr. O. R. Stafford
Watts -------- Dr. E. J. Riche
Whittier -------- Dr. W. H. Stokes
Madera County—
Dr. L. St. John Hely -------- Madera
Madera -------- Dr. L. St. John Hely
Marin County—
Dr. J. H. Kuser -------- Novato
Belvedere -------- Dr. Florence Scott
Larkspur -------- J. R. McGuffick
Mill Valley -------- James V. Chase
Ross -------- Dr. Thos. U. Smyth
San Anselmo -------- Dr. O. W. Jones
San Rafael -------- Dr. W. J. Stone
Sausalito -------- Dr. Allen H. Vance
Mariposa County—
Dr. F. L. Wright -------- Mariposa
Mendocino County—
Dr. Judson Liftchild -------- Ukiah
Fort Bragg -------- Dr. L. C. Gregory
Point Arena -------- Conrad Nicks
Potter Valley -------- W. T. Eddie
Ukiah -------- Dr. Lew K. Van Allen
Willits -------- Dr. F. C. Gunn